AMERICAN VETERINARY REVIEW.

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EDITORIAL.

EUROPEAN CHRONICLES.

PARIS, October 15, 1911.

ELECTRIC BURNT WOUNDS.—Notwithstanding all the precautions that are taken, accidents caused by industrial electricity are quite common, and human surgeons as well as veterinarians may daily have occasion to care for patients, subjects of those accidents. They are of two orders: General effects of commotion, varying very much in intensity; sometimes temporary, or again sufficiently severe to kill suddenly, and again local effects to the points of contact of the animal body with the electrict current conductors, which consist in burns more or less severe, extensive and deep. These electric burns have clinical characteristics, which are specific, and give them a peculiar physiognomy and evolution, quite different from ordinary burns; and on these accounts, they deserve special attention. It is from the article on the subject written by Dr. Ch. Lenormant that I extract the following points.

The subject has already received the attention of many writers and valuable facts have been advanced relating to these wounds which can be found on any and every point of the body, but whatever be their seat, have characters which belong to them, which differentiate them from ordinary burns; consisting in the

aspect of the lesion, their state of indolency and their aseptic evolution. To veterinarians these will I hope prove of interest.

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The aspect of the lesions varies with the depth of the burn, but is always different from that of ordinary burns. To this point of view they are divided into superficial and deep. The first are rare, consist in small superficial erosions, with irregular edges and corresponding anatomically to the classical second degree of burn wounds; viz., those in which the dermis is not affected.

The very high temperature developed at the point of contact with the electric current gives rise most generally to a massive destruction, a carbonization of the tissues to quite a considerable thickness. Deep wounds for that reason are the most frequent. Their aspects are most characteristic and present themselves as true losses of substance; "craters" like, deeply hollowed in the teguments and tissues underneath. These losses of substance varying in extent, sometimes linear when due to a wire of small dimension, have an irregular, blackish bottom, with little dark red spots; their borders regularly cut are perfectly distinct from the surrounding tissues and there is never any indication of inflammatory reaction; "there exists no progress of intensity in the size of the burn, which forms a homogeneous mass evenly modified in all its parts; and which so to speak is buried in the middle of healthy tissues."

It is not rare for the carbonization to go beyond the teguments and reach also the tissues underneath. Tendons and muscles are then also destroyed and more or less severe sequelæ and malformations may follow. Bones themselves are often involved, when they are covered only by a thin layer of soft parts. In these cases necrosis of more or less severe nature may be the result.

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Indolence is the second essential character of electric burns and it is perhaps the most unexpected and the most spe-

cific, if one takes into consideration the severity of the pain caused with ordinary burns. Whatever may be the manner in which this symptom is interpreted, whether it is attributed to the destruction of nervous termination or to the aseptic condition of the lesion, it is almost always constant and recognized by all authors.

It can be easily demonstrated. The indolency is such that in human surgery, some wounded persons did not know that they had been injured. A man who had been extensively burned on the face did not realize it until he looked at himself in a looking glass. Another went home after the accident, saw that his clothes had been burnt, and only then found that he had a deep wound on the forearm under them.

This indolence exists only for wounds produced directly by the electric current and it is very curious to observe that when the clothes of the wounded have been burnt, the secondary lesions so produced are then very painful and in contrast with the painless condition of the burns situated on the very points of application of the current.

Finally the last character distinguishing electric from ordinary burns is an *aseptic evolution*; there is no inflammatory reaction, suppuration is absent, the carbonized tissues slough little by little and without the interference of any infectious phenomena. This, so remarkable aseptic evolution, is undoubtedly the result of the massive sterilization of the tissues by the very high temperature produced on the level with the penetration of the current. It has interesting consequences to the point of view of the repair of those electric lesions. Superficial burns cicatrize rapidly, with a regularity and a perfection sometimes marvelous. The cicatrix is smooth, supple, white and never has the shrunk, rough aspect, retractibility and abnormal cicatrization of ordinary wounds. When the wound is deeper, repair can also go on quite easily. The scab contracts, sloughs out and leaves a smooth surface which rapidly cicatrizes entirely.

However, there are instances where on account of losses of substance a slow cicatrix takes place only after months. Such is the case when there has been complication of bony necrosis.

There is also another character which can be considered as special to electric burns, it is the absence of general accidents which frequently complicate ordinary burns.

This principally refers to patients of the human family, however, if phenomena of shock, visceral congestion and vascular thrombosis, etc., have not yet been mentioned, it is probably due to the fact that electric burns are ordinarily quite limited in their surface, notwithstanding their depth and that in the pathogeny of those general accidents, the extent of the wound is all and the depth nothing.

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INFECTIOUS OSTEITIS OF CATTLE AND HORSES.—Under the name in the *Journal de Zootechnie,* Doctor A. Baumgartner has called the attention upon a morbid entity which is not rare and yet upon which bibliographic information is comparatively meagre. It is indeed a primary infectious osteomalacia, which has not entirely escaped attention, and to which Frohner, Blain, De Does, Ziemsen and others have made some allusions.

Baumgartner has made a number of private observations amongst young bovines, principally in those aged from six months to three years and in which he has noticed the following symptoms:

"When the bones of the extremities are affected, the first manifestation of the disease is lameness of one or several legs, with difficulty in carrying weight. Slight, insidious and intermittent at first, this lameness soon becomes more marked and chronic. It seldom occurs suddenly or if it does the animal is unable to stand up. In all the cases the characteristics of the lameness consists in the stiffness of the leg, and resting on the toe. Walking is stiff and painful. The back is arched. The animals avoid standing and prefer lying down. Careful examination of the legs reveals no localized pains, no swelling of the articulations; although sometimes pressure and percussion on the superior extremities of the bones seem to be painful. In a few cases, on those regions slight swellings of the subcutaneous tis-

sue may be observed. Abscesses may also be present and the pus has a bad odor.

"Sometimes, however, the primary lesion is located in the vertebræ and on that account stiffness and immobility of the vertebral column is noticed; extending perhaps to paralysis of a portion of the trunk. The pulse is always much accelerated, temperature raised up to 41 or higher, there is great fever and yet notwithstanding this hyperthermia, appetite and digestion remain good. Nevertheless loss of flesh is soon manifested and general muscular atrophy becomes marked more and more so.

"Spontaneous recovery is possible in mild cases, but death by cachexia often follows after a year."

The study of the pathology of this affection has been carried out by Prof. Guillebeau and besides the bony lesions of osteitis and osteoporosis that he has found, he has also invariably noticed by miscroscopic examination, the presence of the bacillus of necrosis (bacillus necrophorus of Flugge), to which is undoubtedly due the osteoporosis and progressive necrosis observed.

The treatment recommended by Baumgartner consists either in injection of iodipeine or the internal administration of iodide of potassium. Associated with massage this treatment has obtained radical and complete recoveries in the majority of cases where he employed it.

The conclusions of Baumgartner are:

"1. There is often observed in horses and in cattle an osteitis and an osteomyelitis, very painful, due to the invasion of the bacteria of necrosis either alone or in sympiosis with a coccus taking the Gram. 2. This infection gives rise to a marked lameness; too frequent pulse and sometimes fever. 3. In some cases there is formation of abscess. 4. On the bony tissue, the disease has a destroying character, without formation of secondary abscesses. There is never increase of size of the bone; sometimes there is great soreness on pressure. 5. The disease is always of long duration. 6. Iodine treatment has a great beneficial effect. 7. To this date most cases of this disease have been considered as rheumatism.

* * *

NEW APPLICATION OF SCOPOLAMINE AND MORPHIA IN LARGE ANIMALS.—*Scopolamine* or *hyoscine* is an alkaloid obtained from hyoscyamus, plant of the solanaceous family, and which comparatively has recommended itself in human medicine by its hypnotic properties; which, somewhat highly praised by some, are, however, considered by other as limited. The action of scopolamine, according to therapeutists is analogous to that of atropine. It produces mydriasis, accelerates the heart's action by paralysis of the pneumogastric, reduces the salivary secretion and perspiration, and paralyzes intestinal peristaltism. It differs from atropine in accelerating the respiration only slightly, because of its mydriatic action being more powerful and quicker and producing a great vaso-dilatation towards the kidneys. During the action of scopolamine, animals, especially dogs and horses, are very restless; they present a certain auditory hyperesthesia and weakness of sight. In man, the bromidrate of scopolamine given in very small doses produces a slight hypnotic action, which, says Kaufman, is not observed in animals. And yet in those, as well as in man, chloroformic anesthesia is obtained much more rapidly when an injection of scopolamine has been previously made. On account of this, a method of mixed anesthesia with both chloroform and scopolamine is often resorted to; although its combination with other hypnotics, either morphine, chloral, cocaine, etc., have also had their advocates, experience having demonstrated that the use of the pure alkaloid alone presented too serious objection.

The adjunction of morphine to scopolamine is the mixture most generally used by many and if it has not been resorted to oftener in veterinary medicine, it ought to be for the narcosis that it produces can be of great advantage.

Doctor Arturo Kisavelli in the *Nuovo Ercolasis* calls the attention to the good results he has obtained by producing a state of semi-narcosis in the treatment of prolapsus uteri of the large animals, cows and mares. And while the number of cases in which he has used it is rather small, the results having always been crowned with success they deserve attention; especially from

the fact that the condition of the animals was quite serious, assuming as he says, the third degree of prolapsus established by Prof. Vachetta; namely the uterine mass protruding very extensively and being complicated with eversion of the organ. The preparation Dr. Kisavelli used is composed of: Bromidrate of scopolamine 5 millig., chlorydrate of morphia 30 centig., sterilized chloride of sodium 18 centig., distilled sterilized water 20 c. c. The application consists in two injections of 10 c. c. on each side of the neck or on the croup; the second being made a short time after the first and when the prolapsing organ has been cleaned and the reduction is about being made.

Shortly after the injections the animal becomes quiet, drops into a state of semi-narcosis which facilitates enormously all the manipulations which sometimes are required. This semi-narcosis lasts generally between half an hour to two hours, no bad effects follow and the reduction remains permanent. The application of a bandage is, however, a wise precaution. Doctor Kisavelli records seven cases treated in cows; with the exception of one that died from septicæmia, all recovered. A similar success resulted in two mares.

In conclusion of his article, the Doctor says: Small doses of scopolamine associated with morphine produce in bovine and equine animals a state of semi-narcosis similar to those produced in human patients; such a state can be taken advantage of in veterinary obstetrics in the reduction of uterus with prolapsus by quieting and reducing the expulsive efforts of the animal; the use of scopolamine in small doses is not followed by any alteration or disturbance whether immediately or afterwards.

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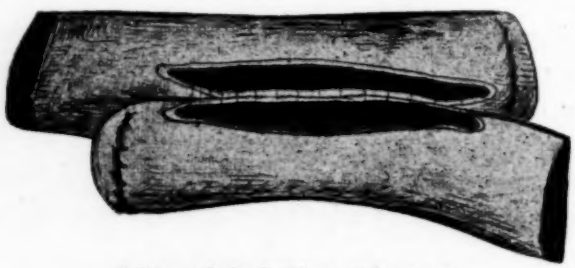
LATERO-LATERAL ANASTOMOSIS AFTER ENTEROTOMY.—Generally speaking, intestinal surgery, and principally that referring to enterotomy has found in veterinary medicine but few applications. Perhaps in small animals the attempts have been more frequent. And yet with the comparative safety offered by aseptic measures there seems to be no reason why they should not be more frequent.

For Doctor Umberto Maggi the principal objection to the admission of this surgical interference, is the post-operative stenosis of the intestine which is likely to follow on account of the method in which the resection of the intestine is performed. It is indeed likely to occur when one takes in consideration that the resection being made, either circular or oblique, with following sutures à la Lembert or Czerny or perhaps with the aid of the button of Murphy, as practised in human surgery, there is at the point of cicatrization the formation of a cicatricial ring, which after a certain length of time is liable to contract and give rise to complications which may in many instances prove fatal. This contracture of the intestine brings about a condition of stenosis which he describes as latero-lateral entero-anastomsis after in-large animals, the intestines being of much smaller dimensions.

It is to avoid this bad result that taking lessons of what is done in human surgery, Dr. Maggi in *Il Nuovo Ercolasis,* relates the application that he made of this method in several cases and which he describes as latero-lateral entero anastomosis after intestinal resection in small animals.

The operation is comparatively simple. After resection of the portion of intestine which is to be removed, each of the di-



Scheme of the incisions and sutures.

vided portion of intestine, true intestinal stumps, are carefully closed with sutures. On the sides of the two intestinal segments, an incision is made, as near as possible of each other, measuring the same size and then sewed together so as to re-establish a direct passage between the two parts of the intestine. It is essential that the stumps be sufficiently closed to the extremities

of the new opening, although in opposite direction to each other to avoid the formation of too large a cul-de-sac where intestinal matter might collect.

With this modus operandi, Maggi has operated experimentally upon 10 dogs, of various ages and size and weighing between 7 and 20 kilog., anastomosing in some portions of the small intestines together, in some the large. With the exception of the first dog that died from peritonitis, because of deficiency in the technic of the operation, all the others recovered. Destroyed at various times, from about 15 days after the operation to about six months, their post mortem showed a solid cicatrization and a perfect free passage at the point where the entero-synthesis had been performed.

Since these experiments, Dr. Maggi has had opportunity to resort to the operation in many instances and speaking in favor of the method concludes that it presents three principal advantages:

1. Avoids the common complications that follow the operation performed with a circular suture. 2. To always leave the calibre of the cavity of the intestine double in size. 3. To allow the reunion of segments of intestines even when of different dimensions.

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Microbes in Eggs.—Most of the writings published upon the bacteriology of eggs relate to those whose contents were abnormal. Schrank, Zorkendorfer have specially studied the microbes of rotten eggs. The microbian flora of eggs, microscopically unaltered, seems less known. Barthelemy has mentioned the microbe of chicken cholera in the eggs of hens suffering with that disease and the same observation was made by Celli and Marchiafava. Gaertner, studying experimental tuberculosis of canaries has related that some of their eggs contained tuberculous bacilli. Artault has inoculated tuberculosis to rabbits from the contents of eggs with unknown origin. The investigation of Cao having for object the study of the permeability of the shell

for micro-organisms made him examine eggs of healthy hens, as they were laid, and then at periods further and further apart until the phenomena of putrefaction appeared.

Mr. A. Chretien, in *Hygiene de la Ciande et du lait,* has related the experiments which he has made on this question of the presence of micro-organisms in eggs which had been laid for a certain time, but presented no character justifying their being taken away from use. For instance: *The air chamber, a little larger than in freshly laid eggs, may even in some occupy one-third of the total volume of the egg the internal shell membrane, at the level of the separation of the air chamber and the albumen, undergoes lateral displacements when the egg is slightly shaken. The yellow is relatively mobile in the middle of the white, which is less gelatinous, but there is no adherence of the yellow to the shell membrane.*

Eggs in these conditions, although not certainly fresh, have undergone only little changes. They are old but not rotten eggs.

From his careful investigation, Mr. Chretien gives the following record of the micro-organisms that he has found: Bacterium-coli, 31.57 p. per cent.; streptococci, 22.36 p. per cent.; staphylococci, 21.05 p. per cent.; bacillus fluoriscens non-liquef., 10.52 p. per cent.; chromogenous microbes, 7.89 p. per cent.; paracoli, 3.94 p. per cent.; undetermined microbes, 11.84 p. per cent.

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Among these micro-organisms, the coli-bacilli and those of the same group, although rarely virulent, deserve attention on account of the part they generally take in alimentary intoxications.

Mr. Chretien concludes in saying that it is difficult to tell the exact origin of those various microbes. Zimmermann has demonstrated that the egg can be infected during its formation in the oviduct; Zorkendorfer and Schrank have succeeded in realizing the entrance of bacilli through the shells. These two modes of infection take place certainly and if a certain number

of freshly laid eggs are free from germs, they are very much exposed to becoming infected during the numerous manipulations they pass through before they are to be consumed.

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BIBLIOGRAPHIC ITEMS.—The twenty-sixth annual report of the Bureau of Animal Industry for 1909 has been issued. Besides the excellent report of Chief Melvin, it contains among many articles of interest, some very essential from the veterinary point of view; namely, "A Study of Surra found in an importation of cattle, followed by prompt eradication," two valuable articles on the "Viability of tuberculosis bacilli in Butter and in Cheese" and one on the "Nature, cause and prevalence of rabies." All those by Dr. John R. Mohler, the Chief of the Pathological Division and his assistants. There is also a concise article from A. R. Lee, Junior Animal Husbandman, on "The Ostrich Industry in the United States." A number of plates illustrate the various articles.

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PUBLICATIONS AND PAMPHLETS ACKNOWLEDGED.—Veterinary Notes, of September, 1911, Parke, Davis & Co.; Annual Report of the Chief of the Cattle Bureau to State Board of Agriculture of Massachusetts for the Year 1910; Disease in Sheep (Bottle Jaw) by E. A. Weston, G.M.V.C. and B.N.Sc.; Mulford's *Veterinary Bulletin* for July, 1911.

A. L.

CORRESPONDENCE SCHOOLS.

On page 357 of this issue of the REVIEW an article appears from the pen of our esteemed collaborator, Dr. D. Arthur Hughes, entitled *"How They Study Veterinary Anatomy and the Practice of Veterinary Medicine by Correspondence."* Dr.

Hughes begins his article by stating, "The correspondence schools are still with us." That, unfortunately, is true. He then gives the course of instruction *verbatim,* as given in the advertisement of one of the schools, which had fallen into his hands. The ridiculous statements made by the advertisers certainly warrant Dr. Hughes' final comment: "We should stop such fakes, even if a trip-hammer is needed to do it." As further evidence of the affront to the veterinary profession that the persistent existence of these so-called schools is, we have published in this same number, on page 388, under the head of Correspondence, a letter from the president of the Texas Board of Veterinary Medical Examiners to the REVIEW, together with one from an applicant for license to practice in that state, addressed to the president of the board. (It will be remembered in connection with Dr. Watson's statement in said letter to the REVIEW (*i. e.*), "*I enclose a copy of the act,*" that Attorney General Woodward's translation of the Texas Practice Act was published in the August number of the REVIEW, page 611.)

While we are certain that the veterinary profession, as a whole, fully appreciates the incompetency of correspondence schools to impart knowledge on veterinary science for the very good reason that they themselves do not possess it, yet we believe it will do no harm for its members to see for themselves an example of the brilliant accomplishment in that line, as evidenced by the character of the application for license to practice, referred to. This applicant, according to his own statement, has had the benefit of the tuition of four such institutions, three of which he says have granted him diplomas, and speaks of having "taken the course" in the fourth. Incidentally, it is a powerful object lesson, demonstrative of the benefit of entrance requirement in legitimate veterinary institutions; for no veterinary school, no matter what its teaching facilities might be, could do anything with that sort of material. Unquestionably the veterinary profession is a unit in its condemnation of these counterfeit institutions and desires their extinction; which, of course, must come about *eventually* by a process of evolution and elim-

ination, as each state finds itself in a position to prevent their "graduates" (pardon the use of the term) from practicing within its confines; but we believe their extinction can be expedited by a little activity in the way of ferreting them out and taking advantage of the United States postal laws, which forbid that fraudulent business be conducted through the mails. As to whether or not the same thing applies to the Canadian postal laws, we are not positively posted; but think that it does not.

We are glad that so energetic a member of the profession as Dr. Hughes has attacked the situation, and assure him that we are in thorough accord with him; and will aid him in any way that we can, whether it be the "trip-hammer" method or some other.

THE A. V. M. A. IN INDIANAPOLIS IN 1912.

Indianapolis has been predicted as the next meeting-place of the AMERICAN VETERINARY MEDICAL ASSOCIATION since the closing days of the Toronto meeting; and the REVIEW now takes pleasure in officially announcing that it will be held in the city of Indianapolis, Indiana, in the week beginning August 26, 1912. Indiana is a fertile farming state and, consequently, rich in veterinarians. The host city, the capital of the state, is fast approaching the century mark in years of existence and is therefore rich in educational institutions, and is altogether a happy choice. Indiana ranked among the big states in attendance at the last A. V. M. A. meeting, being fourth on the list. Besides, it is in the middle West, the home of the large live-stock markets, the large veterinary educational institutions, and the largest number of veterinarians to a square mile of any other part of the country. We believe that the association will be benefited by a visit to the "Hoosier" state and that the state will be benefited by a visit from the association. Already, then, the campaign is started for the 1912 meeting of the A. V. M. A. at Indianapolis, and there should be no relaxation of effort to make it the biggest meeting in every sense ever yet held, until the president's gavel falls at its opening.

INAUGURATION DINNER TO NEW YORK UNIVERSITY'S NEW CHANCELLOR.—As a fitting close to the week's activities at New York University in honor of the installation of Elmer Ellsworth Brown, LL.D., as seventh chancellor of New York University, a dinner was held at the Hotel Astor in New York City, on the evening of November 9. Rev. George Alexander, D.D., was president of the dinner. The invocation was given by Rev. Nehemiah Boynton, D.D., and the dinner president then introduced the new chancellor and the following speakers: Paul Henry Hanus, B.S., LL.D., delegate from Harvard University; Arthur Twining Hadley, LL.D.,president of Yale University; William Francis Magie, Ph.D., delegate from Princeton University; Nicholas Murray Butler, LL.D., president of Columbia University, and Jacob Gould Schurman, LL.D., president of Cornell University. Dr. Brown came to New York University from the head of the United States Department of Education at Washington, D. C., and President Taft wired his regrets at not being able to be present at the dinner, and paid Chancellor Brown the compliment of saying that the government had lost an efficient official when New York University acquired Dr. Brown as its chancellor. All the schools were represented in his honor; nearly seven hundred being seated at the seventy-nine tables in the beautiful ballroom of the Hotel Astor. The Veterinary School was represented by the following gentlemen: W. J. Coates, '77 (grad.), dean; H. D. Gill, '84 (grad.), faculty; John F. Winchester, '78 (grad.); Wm. Dougherty, '74 (grad.); W. Horace Hoskins, '81 (grad.); J. Elmer Ryder, '84 (grad.), faculty; P. Burns, '88 (grad.); Joseph Ogle, '89 (grad.); Robert Dickson, '92 (grad.); W. C. Miller, '01 (grad.); Robt. W. Ellis, '89 (grad.), faculty; W. Reid Blair, '02 (McGill), faculty; Wilfred Lellmann, '93 (Berlin), faculty. The reunion was a pleasant one; some classmates meeting for the first time in nearly a quarter of a century.

THE NATIONAL HORSE SHOW AT NEW YORK.—From the time the horse made his bow before the footlights in Madison Square Garden, New York City, on Saturday, November 18,

until the final curtain, late in the evening of the 25th, he occupied the centre of the stage, and was the admired of all admirers. Some of the features in relation to the recent horse show to be recalled with satisfaction are, that the show was the greatest from the point of entries and classes, of any previous one during the past twenty-seven years; the Garden looked better than it has ever looked before, and there seemed to be a sort of general revival of interest in the horse. And, if we are to accept the time-worn remark, "one is judged by the company he keeps," then the horse must be given first place. For it is a noteworthy fact, that whenever or wherever the horses hold their conventions, be they county, state, national, or international, the very best people in the land flock to them and participate in their activities. And, while many go because it is fashionable and seems to be "the thing to do," the great majority are undoubtedly attracted because of their genuine interest in the horse, and because of their realization of the importance of the horse industry in the field of agriculture. The interest shown in the officers' chargers and in cavalry horses generally, as indicated both by the prominent place they occupied in the program and the attraction they had for the spectators, suggests the realization on the part of the public of the importance of that class of horse. A class of horses that should not be neglected in this country; for, while they can play other rôles satisfactorily in times of peace, no twentieth century mechanical device could possibly replace them on the battlefield. And so with the police mounts, which attracted even more attention during their maneuvers than did the chargers; nothing can ever satisfactorily fill their place. And with the draught horse, so much in demand; great interest was shown in the wonderful examples of careful breeding that were exhibited. Prominent among them the beautiful dapple gray four-year-old Percheron stallion, "Hautbois," standing 17 hands high and weighing 2,310 pounds. A strong, active breed of horses with tractible manners and good tempers. Another extremely useful breed of horses that were very much appreciated at the show, and should be more generally used on the road by veterinarians and others instead of automobiles, is the

English hackney. This grand little type of horseflesh, full of courage, style and endurance, won thirty-five first prizes in open harness classes, including six championships; while the native breed won six firsts and one championship. In eighteen classes, the hackneys won every blue ribbon. Another excellent type of road horse that again seems to be coming up, is the Morgan horse; a horse that at one time filled the same place in this country as that occupied by the hackney in England. Some splendid types were exhibited. The pony classes, too, were evidences of the care that has been devoted to perfecting that diminutive but courageous equine type. The pony four-in-hand caused delight in the hearts of the juvenile audience which was gathered into the Garden for the opening from the various institutions in the city. Twenty-five hundred of them were present, and occasionally they gave "*voice*" to their appreciation of some clever act on the part of the ponies which were exhibited in the arena for their expecial entertainment. The classes of harness horses, both light and heavy, roadsters, trotters, thoroughbreds, polo ponies, pony hackneys, etc., were well represented, both numerically and from the standpoint of quality, and altogether the NATIONAL HORSE SHOW ASSOCIATION OF AMERICA merits recognition as an educational institution; whose perpetuation is assured through the loyalty of its officers, who assure us, that even if its 28th annual show is not held in the old Garden, of which its followers have become so fond, it will be held in a place equally suited to all its requirements; and that the outlook for next year's show is, that it will be better than it has *ever* been. All hail the horse!

N. B.—THE NEW POSTAL LAWS.—AN EXPLANATION: The new postal laws governing second-class mail matter, requiring it to be carried to and from certain points by "fast freight" instead of mail trains as heretofore, was suddenly "sprung" upon us on our mailing day for last month's issue; so that the copies reached our subscribers about five days late; we having had no opportunity of preparing for it ahead of time, and no way of obviating it at the time. We offer this explanation in the form

of an apology for last month, and ask your indulgence for the present month, which again reaches you a little late, and promise you that after this month, with your help, to again get back to our regular time. *How can you help us?* You can help us by sending in your contributions, reports of meetings and any data that you desire to have appear in the next issue, four or five days earlier than you have been accustomed to doing, as we will be obliged to mail four or five days earlier in order to deliver at our accustomed time. *Try and get data to us by the 15th of the preceding month when possible to do so.*

A DINNER TO DR. BRENTON—A number of the close personal friends of Dr. S. Brenton, of Detroit, expressed their recognition of his sterling qualities as a man among them, and their appreciation of the honor conferred upon him by the AMERICAN VETERINARY MEDICAL ASSOCIATION, in electing him its president, at the Toronto meeting, by giving a dinner in his honor on the evening of November 17, at which time they presented him with a loving cup, upon which were engraved the following names: Drs. H. S. Smith, J. W. Brodie, F. M. Blatchford, E. B. Cavell, G. W. Dumphy, J. Hawkins, W. L. Brenton, Thos Farmer, J. J. Joy, W. A. Giffin, W. A. Ewalt, Geo. D. Gibson, J. C. Whitney, J. Black, Jas. Drury, R. P. Lyman, A. M. Kercher, Wm. Jopling, F. L. Baldock and Robt. J. Morrison. The committee in charge of the dinner were Drs. Black, Dumphy and Hawkins. The presentation was made by Dr. J. B. Kennedy, (M.D.), who, in tendering the cup to Dr. Brenton, spoke of his sterling qualities, his earnest efforts and his accomplishments for the elevation and advancement of his profession. It was a complete surprise to Dr. Brenton, who expressed his deep appreciation of the honor he realized that his brothers in the profession had paid him in giving him the dinner and presenting him with the beautiful souvenir of the occasion. Among the other speakers were: Dr. Dumphy, Rochester (Mich); Dr. J. V. Newton, Toledo (Ohio); Dr. P. H. Shepherd, Cleveland (Ohio); Prof. R. P. Lyman, dean of the Veterinary Department of the Michigan Agricultural College, East Lansing; Prof. Charles Marshall, of the Michigan Agricultural College, and Dr. J. Hawkins, Detroit. It is needless to add that the occasion was a most enjoyable one, both for the guest of honor and all present.

ORIGINAL ARTICLES.

THE EFFECT OF NUCLEIN ON THE BLOOD.*

By B. F. Kaupp, M.S., D.V.S., Professor of Pathology, Division Veterinary Science, Colorado State College and Pathologist to the Colorado Experiment Station.

Nuclein is an organic body contained within the nuclei of cells. It is acid in reaction. In composition it has been placed between proteid and nucleinic acid. It contains from three to ten per cent. phosphorus. When combined with albumen it is sometimes spoken of as a nucleo-proteid. Physically it is an amorphus substance. On boiling with alkalies phosphoric acid is set free. After the isolation of the nuclein from albuminous material, with which it is associated, by artificial digestion of the proteid, the nuclein is brought into solution by potassium hydroxide. The nucleinic acids of all nucleins are the same, but the basic portions differ in the different nucleins. The basic substance, on decomposition, yields one or more of the xanthin bodies. As a rule nucleins are insoluble in dilute acids, but soluble in dilute alkalies. Vaughn states that as a result of this phase they resist peptic digestion and by artificial digestion, on account of this resistance, may be separated from most proteid bodies. Paranuclein is said to be an antecedent of nuclein. Histologically and functionally while they appear to be nucleins, yet they do not yield xanthin bases as adenin, guanin, sarcin and xanthin as do true nucleins. When a nucleo-proteid substance is subjected to a peptic digestion, the albumin is converted into peptone and the nuclein forms an insoluble precipitate.

* Section 5 of special reports of Committee on Disease, American Veterinary Medical Association, Toronto, August 22 to 25, 1911.

As stated above nuclein is obtained from many sources. Meischner first studied nuclein about the year 1874 and gave to this substance the name nuclein. He obtained it from the yolk of eggs. Hoppe-Seyler was the first to prepare nuclein from yeast. Lubarin was the first to prepare nuclein from casein of milk. Polsz was the first to prepare nuclein from the blood corpuscles of birds. Commercially nuclein is prepared either from yeast or the germ of wheat.

Vaughn has successively used nuclein in the treatment of tuberculosis in persons.

Ferguson has successively used nuclein in progressive anemia.

Jacobsohn makes report of treatment of diphtheria, scarlet fever and measles in people and reports good results.

Excellent results have been repeatedly reported in the treatment of canine distemper.

Hiss and Zinsser report excellent results with the use in the human family of leucocyte extracts. In the general summary and discussion of their lengthy article on their experiments we find the following of interest: Leucocytes play a dominant part in the protection of the animal economy; a part, which in many infections, especially those in which poisoning is supposed to depend on endotoxins, necessitates the direct intervention of the leucocytes themselves between the invading micro-organism and their poisons and the more highly specialized cells of the animals.

Animals suffering from severe septicæmias and poisonings following intravenous injections of such organisms as staphylococci, strepococci, pneumococci and meningococci, have shown beneficial results of treatment with extract sof leucocytes, and have, in many instances, survived infections fatal to the control animals in thirty-six hours, even when treatment has been delayed as late as twenty-four hours.

The action of the extracted substances is evidenced in many instances by the marked fall in temperature, and by a conservation of rapid return to normal of the animals' weight. One carefully following the experiments and noting the immediate effect on the temperature and the conservation and quick return to

normal weight of the normal animals must conclude that the principal substance at work is one active in neutralizing poisons, and thus able to relieve the animal economy and give the phagocyting cells an opportunity to carry on their work of ingesting the germs and thus permanently render them harmless.

Freshly obtained living leucocytes when introduced into an infected animal, even intraperitoneally, are practically without effect on systemic infection. The lives of the animals are not lengthened and these intact leucocytes seem to have no influence on the temperatures.

The experiments conducted in this laboratory were for the purpose of determining the following points:

1st. The effect of nuclein on erythrocytes.

2d. The effect of nuclein on the hemaglobin.

3d. The effect of nuclein on the time of coagulation.

4th. The effect of nuclein on the power of phagocytosis.

5th. The effect of nuclein on leucocytes, both in quantity and differentially.

6th. The effect of nuclein *in vitro* on the power of phagocytosis.

The nuclein used in these experiments was that made from the germ of wheat.* Each ounce of the nuclein solution contains approximately 6 grains of sodium tritico-neucleinate. The solution is standardized to a content of one milligram of organic phosphorus to each c. c. of solution.

Case No. 2 gives a good illustration of the effects of the results on normal rabbit.

From a study of this table it will be seen that there is an increase in the total number polymorphonuclear leucocytes. No nuclein was given till noon of the fifth day. Not much change in the total number of leucocytes was noted till about the fifth day after the commencement of the giving of the nuclein. A marked increase of the polymorphonuclear leucocytes at the expense of the lymphocytes took place much earlier. With the

* The nuclein was that prepared by the Abbott Alkaloidal Co., Chicago, Ill.

discontinuance of the administration of the nuclein the total number of leucocytes soon returned to normal. This will also be noted to be true of the polymorphonuclear leucocytes. There was no effect upon the red blood cells.

Case No. 2.

Date.	R. B. C.	W. B. C.	Polymorphs.	Lymphos.	Monos.	Eosins.	Mast.	Remarks.
2, 3, '11	6,080,000	9,000	24	76	..	4	5	No nuclein before count for five days. Beginning at 1 p. m. on fifth day 1 c.c. nuclein was given subcutaneously three times a day, so that on the fifth day two injections were given. No more nuclein was given after the 15th.
2, 4, '11	4,160,000	8,000	36	72	1	3	1	
2, 5, '11	6,116,000	8,000	30	70	..	3	3	
2, 6, '11	6,296,000	8,000	28	71	1	5	2	
2, 7, '11	6,220,000	9,000	22	78	..	4	2	
2, 8, '11	5,556,000	10,000	34	66	2	3	2	
2, 9, '11	5,810,000	10,000	30	69	1	5	1	
2, 10, '11	6,080,000	9,000	44	55	1	4	1	
2, 11, '11	6,720,000	11,000	34	66	..	4	2	
2, 12, '11	5,400,000	11,000	23	77	..	2	1	
2, 13, '11	6,200,000	21,000	63	36	1	3	1	
2, 14, '11	5,440,000	25,000	52	48	..	5	..	
2, 15, '11	5,360,000	20,000	38	61	1	2	1	
2, 16, '11	6,000,000	15,000	33	67	..	3	1	
2, 17, '11	5,920,000	11,000	26	74	..	3	1	
2, 18, '11	6,080,000	11,000	34	65	1	1	1	
2, 19, '11	6,320,000	10,000	32	68	..	4	..	

Case No. 3 was for the purpose of making a study to note the effect of nuclein on the blood in canine distemper.

The subject was a Russian wolf hound pup about four months old.

He entered the hospital February 22, 1911.

History: Two weeks previous he was noted to be ill. There appeared a conjunctivitis, a thin, watery discharge was noted, later muco-purulent which has a tendency to agglutinate the lids. About this time a thin, watery and later a muco-purulent discharge was noted from the nostrils.

Symptoms: Appetite little impaired. Great prostration. Wabbly gait. Particularly weak and wabbly in the hind quarters. First sign of chorea. Very thin in flesh.

In a summary of the above case it will be noted that a marked increase in the total number of leucocytes was observed at the end of twenty-four hours.

The nuclein was always given subcutaneously.

There was very little change in the number of polymorphonuclear leucocytes in this case.

The leucocyte content of the blood remained high after the nuclein had been discontinued eight days.

There was no change in the number of red blood cells.

This dog received no other treatment and steadily improved from the beginning of treatment. The corea entirely disappeared.

It is conceded by the five veterinarians practicing at this institution that prognosis was very unfavorable in this case and as no other treatment was administered recovery must be attributed to the nuclein.

Case No. 3.

Date.	R. B. C.	W. B. C.	Polymorphs.	Lymphos.	Monos.	Eosins.	Mast.	Remarks.
2, 22, '11	5,516,000	7,000	79	14	6	1	..	Count before injection of nuclein. Beginning 1 p. m. 4 c.c. was given subcutaneously three times a day, so that the first day only 4 c.c. was given. No nuclein was given after March 7, 1911.
2, 23, '11	6,430,000	14,000	82	13	2	1	2	
2, 24, '11	6,770,000	14,000	73	26	..	..	1	
2, 25, '11	5,600,000	16,000	74	19	3	..	..	
2, 26, '11	6,420,000	14,000	73	23	3	..	1	
2, 27, '11	6,316,000	20,000	74	23	1	..	2	
2, 28, '11	6,140,000	18,000	67	25	4	..	4	
3, 1, '11	5,820,000	16,000	71	26	1	..	2	
3, 2, '11	6,142,000	13,000	77	18	..	1	4	
3, 3, '11	5,948,000	16,000	76	18	1	..	3	
3, 4, '11	6,000,100	15,000	77	19	2	1	1	
3, 5, '11	6,436,000	14,000	76	20	2	..	2	
3, 6, '11	6,628,000	13,000	79	18	2	..	1	
3, 7, '11	6,712,000	11,000	81	17	1	..	1	
3, 8, '11	6,864,000	12,000	85	14	..	..	..	
3, 9, '11	6,608,000	11,000	81	16	1	..	2	
3, 10, '11	6,720,000	12,000	72	26	..	..	2	
3, 11, '11	6,600,000	13,000	75	20	2	1	2	
3, 12, '11	5,040,000	14,000	77	20	3	..	..	
3, 13, '11	5,200,000	10,000	72	20	1	2	5	
3, 14, '11	5,100,000	13,000	75	19	3	1	2	

Case No. 4 was a buckskin gelding used as a cart horse about the hospital.

The object of this experiment was to determine the effect upon the leucocytes, hemaglobin, time of coagulation and on the power of phagocytosis.

In using the hematocrit in some additional expirements not here recorded (on Case No. 3), it was found that the blood coagulated in the tube before centrifugalization could be accomplished. Following this observation the time of coagulation was taken and found to be 20 seconds. At this time nuclein had been

administered to this dog, hypodermatically, for about ten days. After reflecting over the problem and being aware of the statements made in different publications that an increase of certain salts or proteid substances increase the power of coagulation of the blood, it was reasoned that if the blood could be so altered by the injection of nuclein subcutaneously so that time of coagulation was materially decreased why could not this fact be taken advantage of in cases of hemorrhage following operation or injury in which seepage persisted and inject nuclein directly into blood. It was determined to note the effect of nuclein upon the time of coagulation of the blood in case 4.

Chart for Case No. 4.

1911.	R. B. C.	W. B. C.	Polymorphs.	Lymphos.	Monos.	Eosins.	Mast.	Hb.	Time of Coag.	No. Cocci Per Polymorph.
									Min.	
3, 22	7,100,000	11,000	58	24	10	6	2	100	10	10.5
3, 23	6,580,000	9,000	59	34	1	6	..	95	10	10.3
3, 24	6,640,000	11,000	66	26	6	2	..	100	6	20.5
3, 25	7,520,000	12,000	78	14	5	2	1	100	5.5	39.9
3, 26	7,680,000	15,000	74	21	..	4	1	98	5	25
3, 27	6,942,000	9,000	72	11	1	16	..	100	2.5	23

The count on the first day was made at 1 P. M. The first nuclein was given at 6 P. M. 16 c. c. was given each time hypodermically (subcutaneously).

No nuclein was given after 6 P. M. on the 25th.

On the 23d, 24th and 25th, three injections were made.

In summarizing this experiment we note that the erythrocytes remained stationary. There was a slight rise in the total number leucocytes and in the number of polymorphonuclear leucocytes. The time of coagulation was not reduced till after twenty-four hours. After this time there was a gradual increase in the power of coagulation till on the fifth day after the commencement of administration of nuclein the blood coagulated in two and one-half minutes against a normal time of coagulation of ten minutes. We note that the hemoglobin content was not altered. We note that not only was there an increase

in the total number of leucocytes and of polymorphonuclear leucocytes, but an increase in the power of phagocytosis.

Following the first injection of nuclein on the 25th, it was noted that a swelling appeared in about two hours and was more than six inches in diameter. We were aware that some have made the statement that severe swelling and even suppuration followed subcutaneous injections of nuclein. This was the first swelling we had observed and we determined, if possible, to find the cause. The laboratory assistant, who administered the nuclein, left the graduate standing upon a shelf exposed to contamination and did not wash before pouring out the nuclein for the following injection. Having had some experience with contamination with the bacillus subtilis in my vaccine experiments and being aware of the fact that a proteid substance is a good medium for germs to grow in, I became suspicious that the graduate was my trouble. The syringe and graduate were boiled before the next injection and care as to prevention of a repetition of such accident resulted in no more swellings.

I believe that swellings following the hypodermic injections of nuclein is not due to the nuclein, but to some error in technique.

Noting thus far the effect of nuclein in increasing the power of phagocytosis we determined to run some tests to determine what effect, if any, the nuclein mixed with the serum in vitro would have upon phagocytosis. The following test was run:

Case No. 5.

(a) W. B. C.+Plasma+B. E.=21.68 cocci per cell.

(b) W. B. C.+Plasma+B. E.+Nuclein 100 per cent.=14.05 cocci per cell.

(c) W. B. C.+Plasma+B. E.+Nuclein 10 per cent.=20.60 cocci per cell.

(d) W. B. C.+Plasma+B. E.+Nuclein 2 per cent.=19.32 cocci per cell.

a—Was run as a control, b, c and d are the tests.

It will be noted in way of summary of this test that the nuclein added to the phagocytosis test in vitro had no effect on the power of phagocytosis.

Case No. 12 along the same line is of interest at this point and is here given.

Case No. 12.

(a) W. B. C.+Plasma+B. E.=15.40 cocci per cell.

(b) W. B. C.+Plasma+B. E.+Nuclein 1:100=15.62 cocci per cell.

(c) W. B. C.+Plasma+B. E.+Nuclein 1:200=14.96 cocci per cell.

a—Was run as a control. B. E. is abbreviation for bacillary emulsion. The bacillary emulsion in all tests were with a twenty-four-hour growth of streptococcus pyogenes upon glycerine agar. Emulsion made in sterilized physiological salt solution. The dilutions of nuclein were made with a sterilized physiological salt solution. The technique of each is carefully checked.

As a summary of case twelve we find an exact repetition of results as in case five.

Case No. 6 was run for the determination of the effect of nuclein on the blood, the nuclein being administered by the mouth. The case was a pup about 5 months old. A goitre was observed on the left side, which was afterwards removed and found to consist principally of a cyst.

Case No. 6.

Date.	R. B. C.	W. B. C.	Polymorphs.	Lymphos.	Monos.	Mast.	Hb.	Time Coag.	No. Cocci Per Cell.
								Min.	
4, 10	5,860,000	10,000	82	15	..	3	100	1.25	13.32
4, 11	7,060,000	11,000	80	15	3	2	100	1.25	16.5
4, 12	6,520,000	5,000	81	14	1	4	100	1	18.27
4, 13	6,548,000	8,000	84	13	2	1	100	1	14.01
4, 14	6,240,000	9,000	76	20	3	1	100	.75	15

Four c. c. nuclein was administered by the mouth beginning at 1 P. M., April 10, 1911. The first test was run before the administration of the nuclein. Nuclein was given three times a

day before meals, so far as could be controlled. No nuclein was given after the 13th.

This is not considered a fair test for the leucocytes as the experiment was not run long enough. We note the time of coagulation decreased after the second day. It may be here noted that this dog had been on an exclusive meat diet for several days before the experiment, which accounts for the short time of coagulation before administering the nuclein. We note an increase in the power of phagocytosis. The hemaglobin and erythrocytes are unaltered.

A similar test was run in Case No. 7 and similar results obtained. This latter test was upon a normal horse.

As stated above we determined to test out the effects of nuclein upon the power of coagulation. The nuclein to be given intravenously. According to this thought Cases Nos. 9, 10 and 11 were run.

Case No. 9.

The case was a gray gelding. Thin in flesh. Aged. Feed consisted of alfalfa hay. The solution was given intravenously (jugular vein). One ounce in 500 c. c. physiological salt solution.

Time of coagulation before injection—10 minutes.

Time of coagulation 30 minutes after injection—7 minutes.

Time of coagulation one hour and 30 minutes after injection—3 minutes.

Time of coagulation four hours after injection—2.5 minutes.

Case No. 10.

Bay gelding. Nine years old. Operated on. In operation large branch of circumflex was severed and ligation seemed impossible. Severe hemorrhage persisted after packing and suturing wound. Feed consisted of prairie hay and grain. One ounce nuclein in 500 c. c. physiological salt solution was administered intravenously (jugular vein).

Time of coagulation before injection—12 minutes.

Time of coagulation 30 minutes after injection—7.5 minutes.

Hemorrhage had ceased.

Case No. 11.

Roan mare. Aged. Feed consisted of pasture grass. No dry feed.

One ounce of nuclein was given in 500 c. c. physiological salt solution intravenously (in jugular).

Time of coagulation before injection—10 minutes.

Time of coagulation 30 minutes after injection—5 minutes.

Time of coagulation 1 hour and 30 minutes after injection—4 minutes.

As a summary of these tests we see that nuclein when thrown directly into the blood greatly and immediately increases the power of coagulation.

CONCLUSIONS.

As a summary of the preliminary report of investigations made in this laboratory with nuclein the following conclusions seem justifiable:

1.—Nuclein increases the total number of leucocytes in the blood.

2.—Nuclein increases the polymorphonuclear leucocytes.

3.—Nuclein increases the power of phagocytosis of the individual leucocyte.

4.—Nuclein has no effect upon the erythrocyte or hemaglobin.

5.—Nuclein decreases the time of coagulation of the blood, and promises to be of great value in stopping hemorrhage in cases of wound seepage or injuries.

6.—Nuclein has no effect on the power of phagocytosis in vitro.

7.—To obtain the best results in cases of infectious diseases nuclein should be given hypodermatically.

8.—To obtain desirable results in cases of hemorrhage the nuclein should be given intravenously.

FINAL notice of the United States Live Stock Sanitary Association meeting, giving precise place of meeting, will be found on page 409 of this issue.

REMARKS ON THE TEACHING OF ANATOMY.*

By Septimus Sisson, S.B., V.S., Proffessor of Comparative Anatomy, Ohio State University, Columbus O.

The first and most important essential for successful instruction in any subject is a teacher who has a thorough knowledge of the subject matter, good methods of teaching, and enthusiasm. This is a truism which seems to be thought in some quarters not to hold good with respect to anatomical work. As a result of this attitude of mind it is not rare to find this most important of the fundamental professional branches turned over to some convenient individual who admits that he knows something about it "from a practical standpoint," a euphonious statement which often turns out to mean that he has the ability to memorize pretty well the statements to be found in some text book.

The teacher of anatomy should be a trained, professional anatomist, who has had, in addition to the usual courses in the subject, at least one year of graduate work, and some experience in instructional work in a subordinate capacity under expert supervision—preferably in a school other than that in which his undergraduate work was done.

The professor of anatomy should receive a salary sufficient to allow him to devote all of his time to his college work and to justify the college authorities in requiring him to do so. This is absolutely necessary if he is to keep pace with anatomical progress and to do his share in contributing to the advancement of knowledge in this branch. It is a well-established fact that the highest order of teaching is done by men who have done or are doing research, and it is not often true that investigatory activity either alienates men from their duties as teachers or induces in them the tendency to shoot over their students' heads.

* This paper was prepared to be read before the Association of Veterinary Faculties and Examining Boards of North America at the Toronto meeting of the American Veterinary Medical Association, August, 1911.

This may appear a little like an attack on a straw man, but one still hears such statements made by those who should know better. There is nothing which so invigorates a man's teaching as active connection with investigation.

In addition to dealing with the large and rapidly increasing literature of his own subject, the anatomist must keep informed as to what is going on in the clinical branches at least, so that his instruction will stimulate and react to advances in medicine and surgery.

The preparation and care of illustrative material dissections, sections, charts, photographs, lantern slides, etc., requires a large amount of time and energy.

It is evident that if the professor in charge of the anatomical branches is to be able to give his college the best service possible, he must be provided with proper assistance, so that he can devote his energies to those things which others cannot do so well or cannot do at all.

It is neither necessary nor desirable that instructors in anatomy should engage in clinical work. This fact is now fully recognized in the administration of good medical schools, and is beginning to be understood also by the more thoughtful and observant of the officials of veterinary schools. When anatomical instructors are freed from extraneous duties and are provided with adequate facilities for their proper work, then—and not till then—can it reasonably be expected that the teaching of this branch will be thorough and effective, and that worthy contributions to the literature of the subject will be made by American workers.

The methods of teaching anatomy have undergone radical changes in the good medical schools during the last decade. The chief change consists in the shifting of emphasis from the lecture room to the laboratory. It seems indeed strange that the lecture in elementary human anatomy, which was a necessity in the middle ages on account of the lack of books on the subject, should have been able to hold its place when good anatomical texts and atlases exists in profusion! It must be admitted, on

the other hand, that the student and teacher of veterinary anatomy have always been and still are much hampered by the paucity of good modern literature. No one now questions the truth of the statement that sound and useful knowledge of anatomy is very largely the product of careful work in the laboratory and that all other methods of information and instruction are subsidiary thereto. It therefore follows that the student must be given the fullest possible opportunity to obtain direct visual knowledge of structure and to train himself in independent observation. The latter appears to the writer to be so essential to the intelligent practice of medicine and surgery that he is strongly inclined to regard it as the more important result of thorough anatomical training. It is quite true that the same benefit may be derived from the pursuit of other branches of natural science, but unfortunately the average veterinary student has not had similar discipline before beginning his professional training. It is evident from the foregoing considerations, that, apart from their importance in regard to content—which is readily admitted on all sides, if indeed it has not been overestimated—the anatomical courses should be highly appraised as valuable training for subsequent work. It is to be feared that this view of the matter is often not appreciated as it deserves to be by college instructors and administrative officers.

A consideration of methods of instruction brings us to controversial ground, and I regard this difference of opinion as a healthy condition, since it tends to prevent us from going on in a state of fatuous complacency, assured that we have attained perfection in this regard.

There is much diversity of view as to the value of didactic instruction and the proportion of time which should be allotted to to it. With students who have had fair preliminary training and are provided with suitable texts and works of reference, I believe the lecture on elementary anatomy is practically obsolete and very largely a waste of time. As previously mentioned, the lecture was a necessity in the earlier days of the history of anatomy in the absence of the printed page and the anatomical picture.

It is much to be regretted that we are still very far from having (in English, at least), the literature which is needed in this branch. This lack is felt with special keeness in topographic and applied anatomy, and it is sincerely to be hoped that this gap will be satisfactorily filled before many years pass. In microscopic anatomy also there is no text in English which can reasonably be claimed to be at all well adapted to the needs of students of veterinary medicine.

But it will be urged by some that the lecture is still necessary to give opportunity to the instructor to make a judicious selection from the great mass of anatomical matter of those facts which may be regarded as necessary and to emphasize these, a function requiring critical judgment which the student cannot be expected to have developed. In my opinion this end can be accomplished at least as well and with less expenditure of time in the recitation and in the coloquium and demonstration in the laboratory. Unfortunately in some cases the lecturer has little or no real active connection with the laboratory work, an arrangement which should not be tolerated in any good school. Where this condition exists it cannot reasonably be expected that the necessary correlation between the laboratory and class work can be maintained. Furthermore an instructor who is willing to confine himself to lecturing thereby ceases to be an anatomical worker, and makes it very much to be doubted if he ever were much interested in the subject. The idea seems to linger in some quarters that anatomical facts are practically all cut and dried. Nothing could be further from the truth, and in no branch of biological science is there more activity or more progress, although it must be admitted regretfully that we in America have not begun to do our share in this respect in veterinary anatomy.

It is of course not essential that the professor of anatomy should be present throughout all of the laboratory periods, but he should engage actively in them, supervise thoroughly the work of inexperienced assistants, come into personal contact with the students, and inspire everyone to do his best. Let him

not withhold the word of appreciation of good work nor fail to criticize in a kindly spirit that which is careless or slovenly. In this way he is able to assist greatly the development of good assistants and to estimate intelligently the standing of students.

One of the greatest difficulties encountered by the teacher in this subject is that of inducing students to study their material sufficiently. It is therefore my practice to impress on students at the beginning of the course that—so far as professional requirements are concerned—the first essential is to utilize visual memory, and that the only sort of anatomical knowledge which they can use consists of clear and precise mental pictures of the various structures. Ability so to memorize—objects, not words only—varies greatly in different individuals, and is a faculty which the ordinary school training allows to lie dormant. The anatomical teacher must awaken it and make the student fully aware that without its use he will not secure the training and information necessary to deal with subsequent work in the college and in the field of practice.

Systematic, thorough and accurate work must be insisted on. Structures must be fully isolated and cleaned, otherwise the mental picture will be as vague as the dissection is incomplete and slovenly; and what is still worse, the student acquires careless habits of technique, observation, and thinking which vitiate his subsequent work, and render him unworthy of admission to the profession which he seeks to enter. Students who refuse to do, or seem unable to acquire the ability to do, laboratory work of good quality should be dropped. On the other hand care must be taken that the student does not fall into the error of regarding a good piece of dissection as in itself the end, instead of merely the means, of obtaining reliable and lasting anatomical knowledge.

Experience has demonstrated fully that it is not possible to make thorough dissections and to devote sufficient time to intelligent and fruitful examination of preparations unless the subject is properly preserved. Furthermore the natural shape of many organs is lost in soft material, and precise topography

cannot be established. This is especially evident in dealing with the large herbivora, in which countless micro-organisms emigrate promptly after the death of the subject from the contents of the bowel into all the tissues, and cause rapid and widespread decomposition. Since the introduction by Gerota, his and others some fifteen years ago of adequate methods of preservation and in situ fixation, a large part of the anatomy of man has been rewritten. Adaptation of these methods to the study of the domesticated animals has given most gratifying results, in rendering instruction much more pleasant, thorough and fruitful, in revolutionizing in many cases our conceptions of the true form of organs under different conditions, and in rendering possible precision in topography otherwise impossible.

Time will permit only very brief reference to the use of illustrative material. In the case of the large herbivora it is unfortunately hardly possible, except at very considerable expense, to preserve as permanent specimens sections of the trunk and other large preparations. In consequence this deficiency must be made up as much as possible by the use of charts and lantern slides. It may be said in passing that good charts are of greater utility in some respects than slides: the latter must be used with judgment, and limited chiefly to demonstrating features otherwise difficult to present objectively, *e. g.*, details of small objects, unusual specimens which do not often find their way into the dissecting room and cannot be kept, exceptionally good preparations, etc.

Models of gross structure are of quite minor utility. Since really good models are scarce and expensive, while material is easily obtained for natural preparations, it seems the part of wisdom to devote funds which may be available to the purchase of proper containers and cases for natural specimens. It is, however, highly desirable to have models of the eye and ear, and also those showing the chief conduction paths in the brain and spinal cord. In histological and embryological work wax reconstructions and models are exceedingly useful—indeed, in some respects, essential.

I have previously given expression elsewhere to the conviction that the study of anatomy on the living subject is of prime importance as preparation for physical diagnosis and operative interference. It appears that this aspect of the matter has not yet received due consideration—a circumstance which may account in part for the complaint of clinical instructors regarding the insufficiency of the anatomical training of students. The study of surface features in the dissecting room is not sufficient, and besides, many structures which are readily recognizable during life cannot be made out well in hardened subjects. It is evident that efficient instruction in the anatomy of the living body can be given only by the demonstrator dealing with very small groups of students—a circumstance which may render necessary some addition to the corps of instructors. But the results of this method are of such high value as fully to warrant its introduction, or, if already introduced, to justify its extension and improvement if the necessary arrangements can possibly be made.

The chaotic state of veterinary anatomical nomenclature is a very serious matter, chiefly because it imposes a heavy and useless burden on the student. Much of this babel of synonyms is to be laid at the door of non-anatomical teachers and translators of foreign works. It should be distinctly understood, that in the future at least, anatomical names are to be determined by anatomists, and that others must not assume this function. Fortunately the way has been prepared for relief from this situation by the labors of European comparative anatomists, and it seems necessary that we either adopt substantially the terminology which they have evolved, or formulate a uniform nomenclature for ourselves. I see no good reason for attempting to duplicate the onerous task so ably carried out by the European commissions, although some of the names agreed upon may appear undesirable to us; such exceptions should easily be disposed of. As a teacher I must protest most emphatically against the continuance of imposing the senseless multiplicity of terms on our students, who already stagger under the load of an un-

reasonable curriculum. I do not believe that I overestimate the seriousness of the situation, and I am convinced that we ought to give prompt and careful attention to its relief.

In a properly organized department all the branches of anatomy are supervised by the head of the department. The separation of the microscopic from the gross work almost always leads to unfortunate results, as it seldom happens that proper correlation of the two branches is attained, and sometimes no effort is made properly to articulate the two. Even at best the student very commonly gets the false impression that the two fields are quite foreign to each other, whereas the real fact is that the division is quite conventional and arbitrary, and the observer is simply employing in microscopic work certain instruments of precision and methods by which his power of observation is adequately reinforced. The gap often left between macroscopic and microscopic work is specially vicious in that it tends strongly to prevent proper development of the ability to see minutiæ which are visible only to the trained naked eye. Every teacher knows the avidity with which students utilize high power lenses, whereas the trained worker will usually inspect a slide first with the naked eye, then with low power lenses, and finally, if necessary, he will use such magnification as will enable him to make out the finer details. Similarly the student should be taught and required to cultivate the ability to see all that is possible with the naked eye; he will doubtless be surprised to find how many structural details he can make out in this way, and will be able to establish the necessary connections between the gross texture of the organs and the finer structure of the tissues. It is evident from the foregoing that the teacher of either of these branches must have a working competence in both. This statement, of course, is not to be interpreted as equivalent to a denial of the necessity or value of specialism, without which no progress can be made.

In the time at our present disposal it has been impossible to offer only a brief introduction of the subject, which may serve to evoke interesting discussion.

THE SANITARY PRODUCTION AND HANDLING OF COMMERCIAL MILK.*

By Cassius Way, D.V.M., Harvard, Illinois.

When I was asked by the secretary of this association to prepare a paper on some of the important phases of sanitary milk production, the question came to me as keenly as it must have come to many of you, what right have I with my limited experience to take up the time and presume to discuss such an important subject before so many sanitarians of noted ability, experience and accomplishments. Upon reflection, however, I am mindful of the fact that in sanitary work and especially in milk hygiene, the rapid strides that have been made have to some extent obscured the past and illumined the ideals of the future to such an extent that we all, as sanitarians interested in this work, feel ourselves as a part of this great movement. Therefore, realizing the small part that I play in this work, I consented to endeavor to bring before you some of the phases of commercial milk production that, as an individual interested in sanitary work and public hygiene, are constantly before me.

From the standpoint of importance in domestic economy and the publicity it has received, milk probably ranks second to none among the essential foods of to-day. The importance of a safe, clean, wholesome product to supply the demands and needs of urban life cannot be overestimated. The susceptibility of this delicate article of food to many and varied changes and the many possibilities of its contamination renders a careful method of production and handling of vital importance. In producing and maintaining a safe and sanitary milk supply for cities of the magnitude of New York and Chicago certain definite require-

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ments as to production must be maintained, and cleanly methods of handling, refrigerating, transporting and delivering are equally essential. These problems cannot be solved by the layman, they require experience, business sagacity, medical assistance and skill, all working toward a common end.

There is a strong tendency nowadays in business, governmental and medical questions to deal with things of the future in order to avert trouble rather than solve problems under the stress of conditions. The veterinarian who, by his skill in diagnosis and sanitary control, prevents the outbreak of a serious infectious disease, is worth a dozen however skilled they may be, after the disease has become an epidemic. If this reasoning is sane the milk question naturally falls under the surveillance of preventive medicine and the three watchwords are health, cleanliness and temperature.

The maintenance of a healthy herd is the most potent factor in a sanitary milk supply. The herd should be under the surveillance of a skilled veterinanian and any animals suffering from diseased udders, general constitutional disease or disorders of any kind that will in any way harm the milk, should be segregated from the milking herd and treated, killed or disposed of as the case demands. The veterinarian, by virtue of his training and varied experience in sanitation, is the proper individual to watch over the health of the herd.

The attendants should be free from disease of all kinds for, owing to its susceptibility to contamination and being an ideal culture media, milk is often rendered a disease-carrying medium while the venders of such milk are innocent of any contamination with human disease-producing organisms. To this end, a thorough and systematic medical inspection of dairymen, their families and employees should be maintained by all milk distributors in order that they may protect their customers and themselves as much as possible.

Milk should be drawn from the cow at regular intervals into clean pails, preferably of the narrow top design. From a bacteriological standpoint this is the most important stage in the pro-

duction of clean milk. Excessive numbers of bacteria indicate the presence of foreign matter—filth and dirt. Milk that is drawn into an open pail from cows whose udders, flanks and hips are loaded with manure and stable filth, must from the very nature of the process of milking be heavily laden with organisms of an undesirable nature. Therefore, clean cows and narrow top milk pails are prerequisites to clean milk. Many experiments have been conducted to ascertain the value of covered pails in reducing the bacterial count with the uniform result that this form of pail reduces the numbers of bacteria from 40 per cent. to 70 per cent. Progressive dairymen are anxious to reduce the undesirable bacterial content of their milk especially where such an easy and practical solution is at hand and at the present time the reign of the open milk pail seems doomed.

Next in importance to clean milking is proper cooling; this should be done immediately after the milk is drawn from the cow, inside a clean milk house situated within clean surroundings. The time is past when the dairyman can satisfactorily cool milk without the use of ice. However, in certain sections where there are few lakes and where ice is very hard to obtain, cold well or spring water at a temperature of from 48° to 52° F. is essential. Milk can be cooled in a few minutes to within a few degrees of the temperature of this water, and if the temperature is not allowed to rise above 55° F. the milk can be delivered in good condition.

Clean, sanitary milk, therefore, can be obtained if the cows are clean and kept in clean surroundings and persons caring for them and doing the milking are cleanly in their habits and personal appearance. This requires careful daily routine. The stables should be well lighted and ventilated; whitewashed at least twice a year; have tight, sound floors with gutters of non-absorbent material; they should be cleaned and swept daily. During the winter months when the cows are stabled they should be brushed every day, this not only assists in producing clean milk, but is especially profitable by increasing the flow. The udders, flanks and hips may be clipped and the tails trimmed

up and the bush carded out; this will aid materially in keeping the cows clean and when these parts are wiped off with a damp cloth just before milking many fine particles of dirt and large numbers of bacteria are prevented from falling into the pail. The milkers should milk with clean, dry hands, and wear a suit used for milking only. The fact that milk is such a delicate article of food, so susceptible to change and an ideal culture media should control all methods of production.

A bottling plant, milk station or building, in order to handle milk in a sanitary manner should be so constructed as to have different rooms or apartments for different kinds of work. There should be a boiler and pump room, containing boilers, engines and pumps that will furnish an ample supply of pure water, steam at eighty pounds pressure and power for running the various machinery throughout the plant; a receiving room where the milk is received, inspected as to odor, taste, temperature and physical appearance of the fluid, and weighed, and where the farmers' cans are rinsed in cold water, washed and steamed; a storage room; a clarifying and bottling room; and finally ice houses containing an ample supply of safe ice which is used in crushed form around the bottles which are packed in cases and transported to their destination in refrigerator cars.

It has long been recognized that the only safe way to serve milk to a customer is in the original sealed package bottled in the country direct from the dairy under conditions which, from a sanitary standpoint, cannot be duplicated in a large city. Surely there can be no more unfit, dangerous or disgusting methods of serving the public with milk than that of dipping it from cans on the street where it is subject to dirt, flies and other accidental and vicious causes of contamination. The importance of clean containers in vending clean milk is far-reaching. These bottles should be washed, rinsed and sterilized and kept covered in this sterilizer until they are to be used. To the consumer this feature should be vital, for far greater dangers lurk in dirty bottles than in dirty milk.

Now let us consider for a moment the consumers' part in the sanitary handling of milk. Assuming that his bottle of milk is clean and cold, he has certain duties to perform for the protection of the health of his household. A clean, cold place should be provided where it will not be exposed to the heat of the sun or subject to the licking of every stray dog and cat. The cap should be kept on the bottle as long as any of its contents remain unused and when empty it should be washed, first in cold water and then scalded. It is a deplorable fact that too few people treat the milk bottle as a dish in every-day use on their dining table containing a very delicate and sensitive food. To this end some cities have passed ordinances making it a misdemeanor for the consumer to return dirty bottles to a distributor. The education of the consumer along these lines by boards of health through bulletins, the schools and the public press seem to the writer to be of vital importance.

It is proper that every city should adopt practical, prudent methods in an attempt to protect its food supply with due regard for all parties, whether it be for the grower of meats or the producer of dairy products or the manufacturer of any edible food. However, the authorities should not overlook the importance of safeguarding the producers' end from the transmission of unclean containers to the source of supply, for the dairymen are not always responsible for some of the troubles that are said to be brought to the home in milk. Therefore, cooperation on the part of the consumer on the one end and the producer and distributor on the other, will make complete and strong the daily chain in the sanitary handling of commercial milk.

The foundation of the dairy business lies in the producer, its success in the education of the producer and consumer alike. Give the producer a knowledge of the right methods in producing, handling and caring for milk that he may see the necessity and importance of such care and he will in turn seek information relative to the best means to accomplish this end. Owing to the fact that the production of milk is a confining

occupation and requires careful attention to a large number of details twice every day, Sundays and holidays included, from one year's end to another, we should not expect to revolutionize the entire business immediately; but working carefully, step by step, educating the producer in cleaner methods and then paying for the extra work in producing clean, safe milk. A high price does not necessarily mean clean milk, but clean milk means an increased cost of production.

Unfortunately the general public has for a long time known only one milk and that governed mainly by the price. Indifference on the part of the consumer in regard to quality and sanitary conditions in dairying has done much to retard progress such as is seen in other lines of food production.

One of the weak points in the milk business is the fact that milk is not properly graded. Surely milk produced from healthy cows in a clean, sanitary manner among clean surroundings and bottled in the country, refrigerated and left at the consumer's door after having been watched over and protected in every possible way is better and more costly to produce than where there is no dairy inspection, where indifferent, careless methods of production and handling are used, and where bottling in the city or dipping it loose on the street is the practice. Professor Jordon very aptly says, "Are not quality and cleanliness the prime factors for fixing prices for this class of food?" It should not be expected that milk produced and handled under good sanitary conditions should have to be sold on a par with that produced and handled in a filthy, slovenly manner. The consumer derives the benefit; he in turn should bear his share of the expense.

The price of farm products has increased steadily during the past fifteen years and the very feed that the dairymen uses to turn into milk has been steadily advancing and no one has raised an objection, but as soon as the price of milk is raised in proportion to the increased cost of production, labor and transportation, there is a general cry of robbery, monopoly or combine by the public and the public press.

In this advanced age we are face to face with the revelations of science on the one hand and nature's practical problems on the other. One able physician has said, "The country has gone bacteria crazy, even the children on the street are talking about bacteria." This marks the advancement that is being made in elementary scientific education which will in time assist in eliminating many erroneous and distorted ideas in many of these every-day scientific subjects. The American people are not satisfied to pass step by step from the present condition to the ideal, but they must reach the ideal by a single jump, which from a practical standpoint is not a success. Reaching the desired end through a steady, healthy growth along practical, scientific lines is far more conducive to permanent development than the application of spontaneous theories and fancies.

Does the agitator stop to realize that by glaring headlines in the daily papers, containing oftentimes false and ridiculous statements, that he is only poisoning the mind of the consumer on the one hand and antagonizing the producer on the other? Does he ever stop to think that the dairyman does not have to produce milk simply to meet the needs of the consumer; nor is the distributor compelled to serve the public with milk simply because their daily needs demand it? The bulk of the milk supply must necessarily be commercial milk and an understanding of this phase of the subject is quite as important as the sanitary feature. Agreeing, as we all do, upon the importance of sanitary production, we must not lose sight of the fact that there is a producer and distributor in the reckoning.

Your efforts and mine as sanitarians interested in this great work are toward a common end—a cleaner, safer, better product —even though we may differ slightly in methods and detail. The public, whether it be the producing or consuming class, will follow the teachings and guidance of one in whom they have confidence and it is often encouragement and praise that makes men do their best. Therefore, careful, conservative work along practical scientific lines together with the education and cooperation of all parties concerned is bound to work together for the good of public health and humanity.

BIOLOGIC THERAPEUTICS.*

By Geo. W. Dunphy, V.S., Detroit, Mich.

Somewhere about the middle of the nineteenth century, the minute forms of vegetable life known as bacteria were discovered, and by careful observation, it was determined that various diseases were produced by certain bacteria peculiar to these diseases.

This fact having been demonstrated beyond a doubt, the idea presented itself to certain research workers that these micro-organisms, and their metabolic products might be used to combat their own harmful effects on the animal body.

It was believed by eminent scientists that each micro-organism produced a certain poison or toxin peculiar to itself, which when elaborated in the animal body, produced a disease showing similar or rather identical symptoms with what could be produced by the artificial introduction of these toxins into the animal.

These facts having been established by the most careful research, another problem presented itself, which at the time must have looked as formidable as a stone wall to the tireless investigator, and that was, how to destroy the bacteria itself or to neutralize the toxin.

By diligent research along different lines, it was finally discovered that a certain element known as antitoxin existed in the blood under certain conditions, which seemed to have the power of neutralizing these toxins. The idea presented itself to certain scientists that these anti-bodies could be used as a protection against infection. It was found that the blood of animals immuned to certain diseases carried these antitoxins in a marked

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degree, and not only could they be used as a prophylactic, but they were found to have therapeutic properties as well.

This was practically the foundation upon which the biologic therapeutics were established, and a new system of therapeutics begun, that has revolutionized the practice of medicine to a great extent.

While this great evolution in practical therapeutics is scarcely past the experimental stage, enough has been accomplished and sufficient positive results have been obtained, that have never been even approached by any other system of medicine, to stamp it as a science by itself.

Granting that this is an assured science, the question will naturally arise: how are these antitoxins formed in the blood; what is their nature and constituents, and how their therapeutic action is accomplished? I might answer, what these elements are, we know not; what they do, we know well. Take, for instance, the diphtheria antitoxin. We know that when the toxin and antitoxin are mixed together, a very minute portion of the antitoxin will neutralize the toxin. We have demonstrated that when a guinea pig is injected with a lethal dose of toxin, his life can be saved by injecting a small dose of antitoxin within 24 hours, but after 48 hours or longer, it takes many times this dose of antitoxin to neutralize the toxin introduced.

Various theories have been advanced to account for the manner in which antitoxins do their work. Some authorities claim that toxin is a chemical product of the bacteria, having a definite chemical composition, while antitoxin is supposed to be a chemical product of the cells and is practically an antidote to the toxin. Ehrlich claims that one molecule of the toxin combines with a definite and constant quantity of the antitoxin.

As tetanus antitoxin, or antitetanic serum is one of the oldest of the antitoxins that has been used to any extent by veterinarians, we will take up its discussion briefly. While all are ready to admit its value as a prophylactic, we find many that are ready to brand it a failure as a therapeutic agent.

My own experience with its use in the treatment of tetanus has not been as reassuring as I would wish, but it has given as good or even better results than any other line of treatment, and have faith to believe, with the product standardized as it is at the present time and by the use of larger doses, we will eventually get better results.

As evidence of the prophylactic properties of tetanus antitoxin, I quote from a paper written by Dr. Joseph McFarland, of Philadelphia, in 1903, and published in the *Journal of the American Medical Association,* July 4, 1903. Dr. McFarland states that having learned from Dr. Damasa Rivas of certain experiments that he had participated in at the laboratory of professor Calmette at Lille, which showed that antitetanic serum, while not absorbed by the skin or mucous membrane, is readily absorbed by denuded surfaces, and when the dry serum is dusted on wounds it is readily absorbed and confers immunity on animals. Dr. McFarland states: "I at once recognized the practical importance of this observation and conducted a series of experiments to show useful dry antitetanic serum as a dusting powder might be."

I will just give a history of his first experiment, as our time will not admit of a more extensive review of his work along these lines.

Sixteen adult Guinea pigs were employed. The abdomen of each was shaved and with a sharp scalpel the skin was cross-hatched, as in performing the operation of vaccination, and an area of about one cubic meter in diameter was abraded. With a platinum loop a drop of pure culture of the tetanus bacillus was rubbed into the abraded surface. In eight of these animals the seat of operation was dressed with cotton saturated with collodion. The results were striking. Every one of the first series died with typical tetanic convulsions, while every one of the second series lived and showed no symptoms.

Dr. McFarland made several other experiments along these lines; one showing that a reasonably strong antiseptic did not

protect against the infection when not combined with the antitoxin.

Dr. McFarland goes on to say: "I was loath to publish the results of these experiments until I had learned what Professor Calmette intended to do with the observations he had already made and accordingly corresponded with him, telling him of my experiments and of the important bearing I thought they had upon the prophylactic treatment of possibly infected wounds. He answered that he expected shortly to make a communication on the subject, and a later mail brought me a pamphlet containing his communication made to the Academy of Science at Paris, May 11, 1903, in which his own and Dr. Rivas' experiments are given and in which the results of the experiments performed in his laboratory and my own are shown to be uniform."

Dr. McFarland further states: "The advantages of this method are many. The dry antitetanic serum preserves its activity indefinitely. It requires no instrumental administration but can be conveniently sprinkled from the bottle in which it is dispensed, on the wound after the surface has been thoroughly cleansed and prepared to receive it. It is devoid of irritating properties, slowly dissolves and is absorbed, and when thus applied, has the double advantage of neutralizing the toxin of the tetanus bacillus as it is elaborated in the wound, and of being absorbed into the patient's blood where it remains to neutralize any toxin subsequently formed and absorbed." In his closing remarks the Doctor says: "I feel that these experiments of Professor Calmette and myself should have a most important bearing on dispensary practice, and that particularly in those districts of our country where tetanus is known to be frequent, the powder should be systematically used for dressing wounds. I would recommend a very wide application of the antitetanic serum for the prophylaxis against tetanus in both human and veterinary practice."

I quote these extracts from Dr. McFarland's paper to show that the tetanus antitoxin has the power of destroying the tetanus bacillus or rendering inert. I know by hundreds of experiments

of my own that it has the power of neutralizing the toxin. As the two objects are no longer matters of experimentation but established facts, it is up to the veterinarian, as well as the practitioner of human medicine, to devise means whereby the antitoxin can be brought in contact with the bacillus, and also with the toxin, in sufficient quantities to bring about the desired results. I am optimistic enough to believe that this will be accomplished at no very distant date.

Another important biologic therapeutic in our veterinary practice is the antistreptococcic serum. We are all aware that infection with streptococci is not infrequent in veterinary practice, giving rise to a bacteriemia, which is commonly known as blood poisoning. We find it following ordinary wounds, especially punctured wounds, also after parturition, and especially in cases of purpura and other eruptive diseases. In all those cases, if taken in reasonable time, the use of this antitoxin will usually produce the most gratifying results.

Another important therapeutic agent among the biologic products are the bacterial vaccines, which have come into prominence as a branch of the opsonic theory recently advanced by Sir A. E. Wright.

The white corpuscles of the blood have been looked upon for a long time as the defenders of the system against the invading army of disease-producing organisms. According to Wright's theory (which, I might say, has been corroborated by experiments of other prominent scientists), this success depends to a certain extent upon the presence in the blood serum, of elements known as opsonins (a term derived from the Greek verb, *Opsono*—I cater for), which, according to the function of these elements, seemed to be an appropriate term to express their action in the animal body.

It has been demonstrated by experiments that these opsonins have the power to render the invading bacteria an easy prey to the phagocytes, although the manner in which they act is not understood.

We know by experience that resistance to disease varies in different individuals, and circumstances modify this power of resistance even in the same individual. A low resistance is believed to be due to a deficiency in opsonic power. This deficiency can be regulated by bringing about an increase of the opsonins in the blood to the normal standard. This gives a state of immunity as far as that particular germ is concerned. Unfortunately, we do not understand nature's way of meeting these emergencies in the battle against disease, but it has been found that this end can be accomplished in many cases by the artificial injection, subcutaneously, or killed bacteria in suspension.

A great deal of experimental work has been done to determine the utility of bacterial vaccines, and the reports from different experiments do not always agree. However, the aggregate of the evidence is favorable to the use of these vaccines in cases where careful diagnosis has determined the true nature of the disease and the causative micro-organisms, and in many cases reported the most satisfactory results have been obtained.

Unfortunately, for the success of this branch of biologic therapeutics this method of treatment has some very ardent advocates who have recommended it as a panacea for all infections, not taking into consideration that the vaccines must conform in a measure to the nature of the disease. This has, to a certain degree, strengthened the position of some of the skeptical who have scoffed at this method of treatment since its first inception.

Recently considerable vaccine therapy has been tried by many veterinary practitioners who have relied wholly on clinical symptoms as their guide, both as to the dose administered and the frequency of its administration. The results in the majority of these cases have been highly satisfactory.

In conclusion, let me say that I believe this great branch of medicine is only in its infancy as yet. Definite rules have not yet been formulated in regard to dosage in all cases. We must rely on our own judgment to some extent, always taking note of the changes that follow administration of the vaccines, as

the size and frequency of the dose must correspond with the ability of the patient to develop a specific resisting power.

Several other important serums have been brought into prominence of late years that are of great interest to the veterinary profession, notably influenza antitoxin, hog cholera and dog distemper serums, which have passed the experimental stage, and have taken their place among the veterinary therapeutics.

As this is an age of rapid advancement in medical science, no doubt many new biological products will be discovered within the next few years, and in many instances the veterinary profession will be called upon to test these products.

Let me sound a note of warning at this time to each and all to guard themselves against too hasty conclusions. Let us be careful and conservative about forming and declaring our judgment, not basing it, as is frequently done, on one or two small experiments, not forgetting the old adage that "one swallow does not make a summer," and at the same time let us be slow to condemn in case our first experiment should prove a failure.

In such cases we must take into consideration the condition of the patient, its surroundings, how far the disease has progressed, and, if the ravages of the invading bacteria could be overcome, we still have enough of the vital forces left to carry the animal through the convalescent period.

I have faith to believe that the day will come before this century has passed its middle age, when all infectious diseases will be controlled by biologic agents, either along preventive or therapeutic lines.

THE Illinois State Veterinary Medical Association will meet at the Lexington Hotel, Chicago, December 7 and 8, immediately succeeding the United States Live Stock Sanitary Association. These two important association meetings, and the Fat Stock Show, December 2 to 9, will make Chicago an interesting centre for veterinarians and stockmen for the best part of the first two weeks.

PHARMACEUTICAL ITEMS OF INTEREST TO THE VETERINARIAN.*

By Ferd. A. Mueller, Ph.G., V.S., Indiana Veterinary College, Indianapolis, Ind.

In addressing such a qualified and enlightened body of veterinarians on the above-named subject it is not an easy matter to produce new and interesting subjects. I offer my apology should I perhaps take up too much of your time. It is an indisputed fact that we are kept informed of the advancing developments of veterinary medicine by able writers.

By viewing our own doings and by criticising ourselves we find that we are governed by surroundings and conditions that create and command peculiar ruts that we adopt and naturally follow. Some of the ruts are:

1. We get too disciplinary in them and allow ourselves to forget the principles of acquired sciences of our profession outside of our ruts. The following are the prominent allied sciences that compose our art, viz.: theory, practice, surgery, anatomy, physiology, histology, pathology, bacteriology, pharmacy, materia medica, chemistry, matrology, botany, etc.

2. We forget to exert our senses to serve our brains. Because of my subject I will consider the last five named allied sciences, *i. e.*, pharmacy, materia medica, chemistry, matrology, botany, etc., inviting at our expense other factors to perform these dutis.

3. Because we get into those ruts we fail to lock arms with the small army of workers in the A. V. M. A.

4. There is in each one of us more or less latent energy, that if we would only develop it would make us philanthropists.

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5. These ruts make us dormant and negative to the advancement of veterinary science, only to be awakened by the efforts of the veterinary medical associations.

6. We confine ourselves to a limited number of therapeutic agents, when we have at our command a great variety of agents, many of which are specifics that should be used; many more than we can carry in a medicine case, which by confining our practice to a limited assortment, we practice the bad feature of substitution.

7. We will purchase from a supply house manufactured pharmaceuticals, and neglect reading all the conditions and circumstances on the label and not differentiate between a U. S. P. Br. Fluid Extract, an acetic Fl. Extr. or a non-officinal Fl. Extr.

8. We will purchase important, expensive drugs in broken packages.

The A. V. M. A. stands for the development and protection of the allied medical sciences and not for empiricism and commercialism; empiricism and commercialism in medicine are the peers of the uneducated veterinarian; it is to be regretted that these factors have established quite a foothold among the educated veterinarians.

The empiric is obliged to resort to empiricism and commercialism, synonymously termed quackery. But the educated veterinarian who has that noble asset of a veterinary education will find, by following rational tactics, he will be more successful scientifically, commercially and socially.

The pharmaceutical field presents similar parallel conditions. In many instances it preys upon the unguarded in the same manner that the quack preys upon his patron. Pharmacists will purchase pharmaceuticals because they are cheap and dispense them as first class. Just a few years ago we could purchase laudanum at fifty cents per pint because both practiced commercialism. Can it be repeated to-day? Yes, wherever the hand of the law is not near. Phenacetine, antipyrin, antifibrin, aspirin, urotropin, etc., comparatively expensive medimacents when we purchase them in broken packages we may get acetphenetidinum,

phenazone, acetanilid, acetylo-salicylis, hexamethylene-tetramine, a great difference in money value.

Powdered opium may be adulterated with powdered extract of licorice, the natural salicylic acid by the artificial, essential oils by a mixture of castor oil and alcohol, etc.

In these vast countries where desired medical supplies are not always to be had in the different parts of the country, substitutions must be resorted to. Many of us are confronted with these conditions, but where we have brother veterinarians and qualified pharmacists these conditions should not occur. Just think of it, many pharmacists and veterinarians purchase such pharmaceuticals—and you must bear in mind in some instances they are prepared by very unqualified persons—as lime water, paregoric, laudanum, spiritus minderi, sp. of camphor, tr. iodine, dilute acetic acid, dilute mineral acid, tr. iron, aromatic spirits ammonia, Goulard's extract, lead water, liquor potassæ, liquor iodæ, normal salt solution, Fowler's solution, etc., not knowing the *modus operandi,* and if they did they have forgotten or do not care to bother making them; and by so doing, does not the educated veterinarian place himself on the level with the quack?

In do not wish to force the impression that we ought to make all of our pharmaceuticals. We had better leave the manufacture of certain compounds to those experts that have grounded themselves in the details of the chemistry too far advanced for us to comprehend to manufacture. Again, for some preparations, modern machinery has been so developed that its manufactured products far exceed in accuracy and workmanship compared with the abilities of our hand utensils.

Many preparations have been invented in the past forty years that require expert chemists to manufacture; at the same time there are many simple remedies that can be readily made by the veterinarian or pharmacist. I do not mean to say that we should use or substitute these preparations, but I do suggest that we thoroughly learn pharmacognosy and therapeutic properties found in up-to-date material medicas and then compound our own as we desire them.

When we read announcements of some colleges, a claim is made by them that they give instructions to their patrons how to detect the adulterations and sophistications in drugs and medicines. This is true, but does it not rationally follow that the enlightenment of the art of substitution and sophistication is awakened and also practiced for empiricism and commercialistic results? Perhaps above assertions are too radical, but when we reflect and find that the veterinarian received but a limited amount of pharmaceutical and chemical education and that in a very undisciplinary manner to the time of appointment of a national commission of examiners by the Board of Agriculture. Upon annual investigations of the conditions in veterinary colleges it followed that baneful, undisciplinary tactics were removed and certain numbers of hours in instruction in pharmacy, chemistry, laboratory work and botany were demanded. In the other allied sciences a greater progress has been made. If we reflect back forty years, we will find that the microscope was apparently unknown to the veterinarian. Even in human medical schools it was as rare as a curiosity in a circus. Many of our older practitioners would not accept its presentations, for they knew little of the microscope, much less of bacteriology. The germ theory was a contested hypothesis. What a wonderful development is presented to-day. Have not the high percentages of mortalities caused by contagious and infectious diseases been reduced to very low percentages? Are not the members of this association putting their entire energy at the present time to develop these bacteriological theories? We hope to see the day when the labor of the members of this association will have the credit of preventing grief and maintaining happiness in our homes.

We must keep out of our ruts, to exemplify what Emerson said, and receive our rewards, viz.: A man may preach a better sermon or build a better mousetrap than his neighbor, even though he build his house in the woods, the world will find him out and wear a beaten path to his door.

1. Review occasionally your elementary textbooks.

2. Experience is as important as education.

3. Do not forget your experience or your education.

4. It is often essential that we write prescriptions.

There are a few items regarding prescription writing and compounding, for by our enlightened public our intelligence and ability are censored. A prescription may contain six parts:

1. The name of the patient and date.
2. The superscription ℞, meaning "to take of."
3. The Inscription, composed of—base, adjuvant, corrective, diluent.
4. Subscription, stating what is to be done with the Inscription.
5. Signature. The directions for administering the medicaments.
6. The doctor's name.

It is well to observe the little grammar that is necessary. Do not use flourishes. Place a comma after each item in the inscription and a period after each line.

5. Do not ignore volume, weight and specific gravity.

6. Remember the peculiar actions of the different temperatures on drugs.

7. The solvents and the solubility of drugs.

8. Get familiar with the metric system. A few remarks will make it comprehensible, viz.: A meter, the unit of length, is the 10,000,000th part of a quadranth of a meridian of the earth, about 39 in. The unit of volume is the litre, obtained by cubing a decimeter equivalent to about 1 quart and 3 ounces in our measure. The unit of weight is the gramme, obtained by filling the cube of a centimeter with distilled water at a standard thermometric 62° F. and barometric 30 degree.

The units are multiplied and divided in a tenfold ratio. To each unit are applied the same prefixes, viz.: the Latin deci, centi, milli to the divisions, and the Greek deca, hecto, kilo to the multiples. To associate this system with ours a few equivalents must

be remembered. The grain value is obtained by dividing the gramme by 15.43+ which is the weight of the gramme in grains, which equals 0.06+; divisions and multiples are readily computed therefrom; 4.0 represents the drachm and 32.0 the ounce; likewise divisions and multiples will be computed therefrom.

9. Remember the actions, doses and antidotes of the narcotic drugs.

10. Remember that in the kitchen we have many agents that can be used medicinally in cases of emergency, viz.: Mustard, vinegar, butter, bicarbonate soda, salt, spices, flour, molasses, eggs. Toxicology suggests them.

11. Observe chemical, pharmaceutical and physiological incompatibles.

12. Consider the solubilities of the constituents of drugs as they are classed pharmaceutically, according to the respective solvents for them: spirits, liquors, aquæ, etc.

13. Consider the constituents of drugs as they are classed of alkaloids, glycosides, resins, oleo resins, gum resins, gums, volatile and fixed oils.

14. Tinctures and infusions are not so good made from fluid extracts as when made according to the United States Pharmacopœia. Because it is not possible that a fluid extract in some cases can have all the active constituents of its drug in a limited solvent. A tincture or infusion with a ten times greater solvent would be comparatively stronger made according to the Pharmacopœia than when made from a fluid extract.

17. Medicines producing precipitates should always be shaken as the precipitate may be the active principle.

18. All acetates are soluble, but it does not follow that acetic fluid extracts contain more soluble constituents than the U. S. P. fluid extracts. Because the active constituents, mostly alkaloids, exist in plants in combination with vegetable acids whose chemical affinity may be or is stronger than that of acetic acid, and therefore will not yield to the solvent action of acetic acid as well as to the solvent action of an alcoholic menstrum. Clinicians have had therapeutic experiences and can verify above.

19. Keep in mind the chemistry of the different secretions of the alimentary canal, which will greatly assist in applying proper therapeutic agents.

20. Keep in mind the therapeutic actions of drugs, also transcient and cumulative ones.

21. Also the great value of the U. S. Pharmacopœia and the dispensatories.

THE annual meeting of the Ohio State Veterinary Medical Association will be held in Columbus, January 16-17. The veterinarians of the Buckeye state have made a record for progressiveness and they intend to keep it up. All who can possibly do so, should attend it, and there is no restriction on state lines.

B. A. I. MEN AND THE AMERICAN VETERINARY REVIEW.—One of our subscribers in the B. A. I. service who is a very enthusiastic reader of the REVIEW, and who has had to do work in outlying districts away from the office of the inspector in charge, and has thus been inconvenienced and put to the trouble of having his REVIEW held by the publishers, has learned that periodicals will be forwarded to them without extra postage if their absence is in the government service, if addressed to them care of their chief inspector's office; and he desires us to publish the fact for the benefit of his brothers in the B. A. I. Service.

THE Toledo Clinical Laboratories have been closed since November 10, and will remain closed until the 18th of the present month, due to Dr. Longfellow's yearly pilgrimage to various large cities, gleaning knowledge from the most advanced laboratories. This year, our good friend's pilgrimage requires a longer period of time than usually, because, being a member of the laboratory section of the American Public Health Association, he goes to Havana, Cuba, to attend the meeting of that body, December 4 to 9; but the patrons of the Toledo Clinical Laboratories will be more than repaid for any inconvenience they may have been put to by Dr. Longfellow's absence, in the added scientific knowledge that he will bring back and give them the benefit of.

TRAUMATIC PERICARDITIS.*

By G. H. Roberts, Indianapolis, Ind.

The condition which we are discussing, while not at all uncommon in the bovine, for some reason has been slighted by a majority of authorities; therefore we find very little in current literature on this subject; so what we do know has been acquired by each of us in our own experience. The symptoms of this disease are so baffling and complex that it is hardly possible to make any absolute classification of the various forms which are encountered, but for our own satisfaction we have made a classification which we believe will somewhat simplify the subject. According to symptoms and length, of course, there may be said to be an acute or at least a subacute and chronic form. According to the pathology we find a serous, sero-fibrinous, hæmorrhagic and purulent pericarditis. In all forms, however, we find considerable thickening of the parietal and more or less complete obliteration of the visceral part of the pericardial sac. Invariably are also found adhesions along the course of injury; that is, between stomach, diaphragm, lungs and pericardium. This undoubtedly is due to the acute inflammatory reaction. The purulent form is more commonly met with as an acute disease. Whether the pus formation is directly due primarily to the septic condition of the foreign body, or to secondary infection following the trauma, is a question we have not been able to satisfactorily settle in our own minds. In this form, pus forms in the pericardial cavity, either filling up the entire pericardial sac, or forming in pockets due to fibrinous adhesions. In any of the forms in which exudate is present the pericardial sac may be enormously distended, so much so that upon post mortem, not

* Presented at the Forty-eighth Annual Convention of the American Veterinary Medical Association, Toronto, Can., August, 1911.

only quarts but gallons of fluid or semi fluid material will be found. In other cases, when there is not so much fluid present, the distension of the sac will be due to the formation of putrifactive gases, caused by the degenerative changes which have taken place. Sooner or later in the course of the disease, the heart muscle itself naturally becomes involved. This may take the form of serous or purulent infiltration of the heart muscle, or the formation of single or multiple circumscribed abscesses. Naturally associated with this we will find a greater or less degree of fatty degeneration showing the pathological picture usually seen in this condition. Strange as it may seem, the heart sounds remain practically unchanged until the disease is well advanced; about the only appreciable change is the muffling of the sounds accompanied by an increased vascular tension; not until the accumulation of the fluid in the sac has become abundant enough to cause direct pressure upon the heart or other pathological changes have occurred in the heart itself, do we get sufficient cardiac derangement to cause symptoms enough to give us an inkling of the true state of affairs. By this time we get œdema and circulatory disturbances due to the awful strain under which the heart is laboring. It is hardly to be expected that in a condition so grave as this that the lungs, so closely associated to the heart anatomically and physiologically, should escape involvement, nor do they. So we are indeed fortunate if we find nothing more than a localized pneumonitis. More frequently, however, we find a purulent infiltration, and, in fact, any of the conditions which may occur in the lungs due to infection or impeded circulation. As a result of the complex pathological changes which we can readily account for, the objective symptoms soon manifest themselves, such as dropsy, faulty and painful breathing, exaggerated pulsation of the jugular veins, etc.

Pathological changes of the stomach and intestines are those usually seen in gastro-intestinal catarrh, depending on the length of time the disease has been progressing. In practically all cases, if the parts are examined with sufficient care on post mortem,

the perforation between stomach and diaphragm and the entire traumatic tract leading to the pericardium may be readily traced, although at times to do this is practically impossible, owing to the character of the infection present. If the germ causing the infection is of streptococcus variety, we not alone find that the disease runs a shorter course, unless the animal's resistance is very high, but we find, owing to the activity of this germ, a very rapid liquefaction of all the tissues involved, and upon post mortem is seen a matted, pulpified, fibro-purulent mass in which anatomical differentiation is not readily made. If the animal is able to live through the acute inflammatory stage, the post-mortem picture presented is somewhat different, for then we find that organization of the inflammatory exudate or absorption has taken place, and there is seen masses of cicatricial tissue, appearing as roughened, indurated masses.

As before stated, the symptomatology is very indefinite and the early symptoms are all gastro-intestinal. When first seen, the case appears to be one of slight impaction of the stomach or of gastro-intestinal catarrh with a temperature from 102½° to 103½°. A slight diarrhœa or constipation is present. The symptoms seem to be that of gastro-intestinal derangement. The general appearance of the animal would not lead one to suspect any grave disease. In fact, the only suspicious feature is the character of the pulse, which is accelerated entirely out of proportion to the other symptoms. Soon the futility of the medication given and the appearance of some slight cardiac or pulmonary symptom leads one to suspect the derangement is not entirely gastro-intestinal. By careful watching and examination the true diagnosis becomes established, in most cases by exclusion. From now on the case runs a rapid course. The countenance assumes a worried expression. The animal appears languid. The appetite is irregular, gradually becomes entirely lost. The eyes become sunken and lustreless. A cough is present in most cases, especially upon slight exertion. The visible mucous membrane shows variable change in color. Diarrhœa that was slight becomes more pronounced. The animal shows

steadily increasing emaciation and soon succumbs to pulmonary, or more frequently, cardiac insufficiency. In other cases the disease does not run such an acute course; the animal apparently recovers without a correct diagnosis having been made, and the true condition is only discovered from post mortem some time later, as in a case I will report.

Dr. O. G. Whitestine, of Huntington, Ind., reports a case where a crooked fence wire 11 inches long was removed through the ribs on the left side, animal making apparently good recovery, but at the time of her illness showed many of the symptoms characteristic of traumatic pericarditis.

With but few exceptions the prognosis is bad, though in some cases recovery seems to take place spontaneously. There is no specific treatment. The entire course of the disease being complex and indefinite, the best we can do in the present state of our knowledge is to treat the case symptomatically.

In conclusion I ask your indulgence while I report the following cases which it has been my fortune to see, and also a case of Dr. F. A. Nelson, of Lebanon, Ind. While some of the few authorities I have been able to find mention great rise in temperature, I have not seen this in my own cases. Rather have I noticed the temperature becoming lower as the disease advances. However, I do not doubt some of the gentlemen present have met with such cases. I believe the degree of temperature depends upon the violence of the infection and the inflammatory reaction resulting.

Dr. Nelson writes me: "On February 22, was called to see a short-horn cow, five years of age, weighing about 1,300 pounds. Owner stated cow was not eating much and that she had on the day previous a profuse diarrhœa. Found animal with temperature of 102.5. Pulse about 65 but regular; catarrhal condition of the bowels present; conjunctiva slightly icteric and catarrhal. Prescribed a tonic, gave one quart of raw linseed oil. Diarrhœa supervened and owner came in and I gave him some triple sulpho-carbolates to give along with the tonic. Was called again on February 28; found animal weaker.

Temperature 100.5°, pulse about 70, slight œdematous swelling in intermaxillary space. Upon auscultation could detect an increased or intensified heart beat. This and the swelling between the intermaxillary space caused me to pronounce it a case of pericarditis, and I changed treatment to digitalis. Upon exercise this animal would cough slightly, which led the owner to suspect tuberculosis, and for his satisfaction the cow was tested with tuberculin, but no reaction. I did not see the cow again alive, but owner called me March 29 and stated cow was dead and that he wished an autopsy held. I found a tenpenny nail had penetrated reticulum, diaphragm and pericardium, but the nail was scarcely a quarter of an inch inside of pericardium. Of course, adhesions between diaphragm, stomach and pericardium were present, as well as quite a large amount of fluid in the pericardial sac. I will also state that previous to the animal's death the œdema of the chest had increased to such an extent that one-third of the external surface of the abdomen was involved."

Of my own cases I wish to report the following:

Case 1.—In October of 1910, I was called to see a very valuable cow, with a two-weeks-old calf by her side. This animal showed a temperature of 104°. Diagnosis, pneumonia. This animal also showed all the symptoms of an acute gastro-intestinal catarrh. On my second visit, two days later, I made a more careful examination and discovered that I had cardiac trouble present to a marked degree. There was thoracic pain manifested by grunting, and at the end of ten days marked œdematous swellings had appeared at the briskit extending backwards and becoming wider, until the udder was reached and nearly obliterated. On the fourteenth day this cow died. Post mortem held the following day showed a purulent pericarditis with great hypertrophy. This case and the one reported by Dr. Nelson are of the more acute form.

Case 2.—February 10, 1911, was called to see a four-year-old cow which showed symptoms of gastro-intestinal catarrh, with a temperature of 103½°. The owner told me this cow

had not been doing well since calving three months previous, although she was not greatly emaciated at that time. I prescribed oil and tonics. Two days later I was somewhat disappointed in not finding the patient much better, but instead found her suffering more pain manifested by grunting, regurgitation of blood at the jugular, etc. The temperature was lower than it was two days previous but pulse more rapid. She did not care to move and remained standing most of the time. At the expiration of ten days she became very weak and would now lie down most of the time. On the fourteenth day after my first visit the animal died without showing at any time a dropsical condition of any kind. Post mortem revealed what we had feared upon our second visit. Traumatic pericarditis due to a wire 2½ inches long which had found its way directly through the diaphragm and pericardium into the heart muscle, where we found a pocket filled with pus. Very little fluid of any kind was found in the pericardial sac.

Case 3.—March 17 was called to see a cow that owner said was suffering from paint poisoning, as the signboards upon his farm had been newly painted three days before. I found this animal in a dying condition, and a post mortem was made the following day. After examining carefully the stomach and intestines for the effects of toxic agents, I discovered a small opening at the lower portion of the diaphragm. The lungs and heart were removed and a typical traumatic inflammatory tract could be traced directly to the heart. These two latter cases I have termed a chronic form. In Case 3 the owner had another cow die a week later with the same symptoms and post mortem except the heart lesion, which satisfied me that my diagnosis of paint poisoning was correct, and that Case 3 did not die of the traumatic pericarditis, and I feel safe in saying that this was a case of chronic traumatic pericarditis in which the animal might have continued to live for several months producing her seven or eight pounds of butter per week as she showed no external manifestation of disease up to within two days before her death.

SELECTIVE VASO-CONSTRICTORS AND VASO-DILATORS.

By H. Jensen, Kansas City Veterinary College.

The action of certain drugs upon the vaso-motor nerves is in a general way considered in the study of pharmacology in the various colleges of medicine, but inasmuch as the various medicinal agents classified under vaso-constrictors and vaso-dilators only exert their action upon certain groups of vessels and not upon others, the selection of these agents becomes of special therapeutic significance and should be more generally understood. It is not intended to enter into detail of the action of agents herein described, but rather point out common erroneous ideas as well as specific indications for use. The nerves governing the arterioles belong to an extensive system known as the sympathetic nervous system which is composed of ganglia and very fine medullated and non-medullated nerve fibres. The mechanism regulating vascular tension is found in the walls of the blood vessels, in the smooth muscular fibres, in the terminals of the vaso-dilators and vaso-constrictors which are governed by the vaso-motor centres in the medulla and the sympathetic ganglia.

Solution of Adrenalin Chloride.

The solution of adrenalin chloride has, since its discovery, been accepted as one of the very best vaso-constrictors and enjoys a very extensive use locally as a hemostatic, and, as is well known, a solution of 1-1000 injected subcutaneously will enable the surgeon to perform an absolutely bloodless superficial operation. This action is obtained by adrenalin inducing contraction of the muscular coat of the blood vessels. When administered intravenously the constitutional effect being desired, the action

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is what may be termed selective, as only the blood vessels of the abdominal organs are constricted, while the vessels of the lungs, heart and brain are not appreciatively affected (the constitutional action of adrenalin is obtained by injecting it into the veins). When the terminations of the sympathetic nerves arising from the lumbar and dorsal regions are stimulated, a marked rise in blood pressure is observed. This is principally due to the constriction of the blood vessels of the abdominal cavity. Thus it will be seen that adrenalin exerts its influence only over the organs receiving nerve fibres from the dorsal and lumbar cord.

Special Indications for Use of Adrenalin.—In chloroform or ether narcosis, surgical shock, etc.

It will be remembered that in chloroform poisoning almost all of the blood of the body is drained into the vessels of the abdomen. The vaso-motor centre is paralyzed and death ensues from vascular relaxation. The intravenous injection of adrenalin acts directly upon the muscular fibres in the vessel walls and so to speak by constricting same, forces the blood out of the abdominal vessels into the general circulation and thus causes a rise in blood pressure. Many an animal apparently dead, pulseless with only an occasional gasp for breath, has been restored by this treatment.

In cardiac failure, hemorrhage of bowels, bladder, uterus, by local application or through its central action.

Contra-indications.—In hemorrhage of the lungs this agent is worse than useless. As has already been stated, adrenalin has its selective influence over the organs receiving sympathetic fibres from the lumbar and dorsal region, therefore the vessels of the lungs are not constricted and with the increased blood pressure, tends to increase rather than diminish the flow of blood. Experimentally I have caused hemorrhage from the lungs on dissecting subjects and even the direct application of adrenalin solution has no effect. This is also true of the brain.

Administration.—Owing to the fact that this agent causes a complete ischemia of the parts contacted, its administration by

the mouth and subcutaneously when the constitutional effect is desired is of no use, owing to tardy or practically no absorption. Intravenous injections of 4-8 c. c. of the 1-1000 solution diluted in normal saline solution for a horse is the most efficacious method. It should be remembered that the action of this agent is quite transient.

Belladonna.

The action of belladonna on the blood vessels and heart furnishes a very interesting study. The heart is quickened from paralysis of the cardiac inhibitory fibres. Sometimes the heart is slowed and at first weakened owing to the stimulation of the inhibitory centres in the medulla. Blood pressure is considerably increased by the augmented output of the vaso-constrictor centre in the medulla which constricts the vessels of the abdominal viscera. The constriction of the vessels of the abdomen is accompanied by dilatation of the vessels of the skin. This dilatation of the skin, however, is insufficient to overcome the constriction of the vessels of the abdominal viscera so that a considerable increase in the arterial tension follows. The action of belladonna in small doses, constricting as it does the vessels of the abdominal viscera, may be taken advantage of in the treatment of hemorrhage of the bowels, bladder and uterus, with uniformly good results. Belladonna has been used internally in threatened peritonitis following ridgling castration or from traumatisms with excellent results. Although the theory of lessening the blood supply to a part to prevent inflammation may not be in strict accord with the ideas of the modern pathologist, yet from extensive clinical observations I have found it of great value. I have in mind a colt on which an unsuccessful attempt had been made to remove a hidden testicle. A severe laceration of the peritoneum took place with a great mass of intestines protruding from the aperture. The colt was brought ten miles to the hospital in a wagon. The operation was completed and the bowels replaced. After packing the inguinal canal the animal was given five drops of the fluid extract of belladonna hourly

for twenty-four hours, and absolutely no sign of pain or any inconvenience took place.

Penetrating wounds of the abdomen have been treated in a similar manner with excellent results.

The dilatation of the superficial vessels as well known to every practitioner, is taken advantage of in the treatment of bronchitis, pneumonia, etc., in the early stages, the object being to equalize circulation and to diminish the amount of blood in a coagulated area. Under such conditions a large dose should be given. The point to be remembered that excessive doses is liable to cause a general dilatation of the vessels. Small doses of atropine given prior to the administration of chloroform to produce anæsthesia, lessens the danger of chloroform poisoning very markedly, by contracting the abdominal vessels and thus overcoming vascular dilatation induced by chloroform.

Ergot.

Ergot is perhaps one of the most generally used vaso-constrictors at our command, yet according to recent experiments its use in pulmonary hemorrhage is of doubtful value because the vaso-contrictors are not very strongly developed in the pulmonary vessels, and the increased blood pressure produced by ergot might increase rather than diminish the hemorrhage. In other internal hemorrhages where surgical interference is not possible, ergot is the best agent at our command. Thus ergot is useful in the early stages of cerebral, spinal or pulmonary congestion, hemorrhage from the uterus, bowels, nose, etc.

Strychnine.

Strychnine has, owing to its vaso-constrictor and tonic action given excellent results in the treatment of purpura hemorrhagica. A series of experiments were carried on at the Kansas City Veterinary College two years ago and several animals received as much as 1½ grains of strychnine sulphate every hour or in other words, 36 grains in 24 hours, consecutively. It pro-

duces typical toxic symptoms, that of nervousness, restlessness and the least touch would produce a spasm. It occurred to Dr. Brown, of this institution, that this agent, through its vaso-constrictor and tonic effect, would be of value in the treatment of purpura and the results have been highly satisfactory and has, up to this time, diminished the death rate about 50 per cent. It has been found that after the administration of this agent, the serous transudate is diminished and the swelling subsides quite rapidly. A second attack may occur after a period of seemingly very rapid improvement, but the continued use of strychnine has proven quite satisfactory. We now prescribe as much as one grain of strychnine sulphate every hour for three or four consecutive days and so far, none of the animals thus treated have succumbed to strychnia poisoning.

Nitroglycerine.

Spiritus glycerylus nitratis, glonoin, or trinitrin is an alcoholic solution of one per cent. of nitroglycerine. There is a popular idea among practitioners that nitroglycerine is a powerful heart stimulant, but it should not be so considered. Nitroglycerine is a powerful vaso-dilator, the arteries and the veins both widening very considerably under its influence, especially the vessels of the abdominal organs and the head. Owing to the lessened resistance, the heat beats more rapidly and a decided fall in blood pressure takes place.

Indications for Use.—Dypnœa, due to pulmonary congestion, pulmonary œdema, pharyngitis, bronchitis, etc.

Nitroglycerine is a most valuable agent in these conditions, widening as it does all the vessels of the body and so to speak drains the blood away from the congested area, and equalizing the circulation. Also when the heart is laboring hard under great vascular tension.

Contra-indications.—I have to my great dismay seen nitroglycerine given in chloroform narcosis and of course without any beneficial results when it is known that in chloroform poisoning almost all of the blood is found in the vessels of the abdomi-

nal viscera and as nitroglycerine especially dilates the vessels of the abdominal viscera, its uselessness is obvious.

Alcohol.

Alcohol, being a powerful dilator of superficial vessels, is of great value in congestive chills and fevers as it markedly increases heat radiation and also yielding itself so readily to oxidation it also helps to sustain the strength of the animal off its feed. It should be borne in mind that the result of all other stimulation leads to general depression, so alcohol should always be given in moderate doses. A great many other agents owe their medicinal virtues in part to their action on the blood vessels and I trust this short paper may stimulate the practitioner to look into this very important phase of pharmacology more closely and cultivate a more intimate acquaintance with the real virtue of the many so-called worthless drugs.

George West Bainbridge, the secretary of the Streets Protective Alliance of Dubuque, began a recent address with the words:

"In the past, when two rich Englishmen met, they would say: 'It's a fine day. Let's go kill something.'

"Now, when two rich men meet, they say: 'It's a fine day. Let's go motoring.'

"It amounts to the same thing, doesn't it?"—(*Pittsburgh Gazette-Times.*)

The horse will always be more popular than the automobile. That is easily explained for more than one reason. First the men who can get nicely matched teams and drive them right are not very numerous, and second, there is a distinction in every team, when on exhibition. Any man with money can buy and own an automobile and employ a driver to operate it, and, when placed in the show ring, it has so many duplicates that the interest is lost, when another comes along. The horse will always be popular because of no other animal or vehicle being able to take his place and claim individuality of marked prominence.—(*Horn and Hoof.*)

HOW THEY STUDY VETERINARY ANATOMY AND THE PRACTICE OF VETERINARY MEDICINE BY CORRESPONDENCE.

By D. Arthur Hughes, Lit.M., Ph.D., D.V.M., Chicago Veterinary College.

The correspondence schools are still with us. The gullible are applying for "the course of instruction" and are panting for the vapid books gotten out by these "schools." Occasionally the advertisements of those who conduct the "instruction," such as it is, fall into our hands, and cause us no end of amusement. The other day a "short description of the course of instruction," as it is carried on by one of these correspondence "schools," by chance fell into our hands, and we were regaled with the tidings how to study veterinary anatomy; how to know all about every disease of every animal, and how to treat them with the ease that the wizard, with one touch of his wand, turns mice into horses, or may banish horse diseases with his miraculous power. A book that could teach such things would be a book to conjure with. A man would have to kiss the Blarney Stone a thousand times in order to convince any but the gullible of the falsity of its every statement.

But here is the advertisement of the "course of instruction." Read it and relish it:

"The following is a short description of the course of instructions:

"Part 1 of the Course of Instructions deals fully on every part in connection with the anatomy of structure of the horse. Not a big word is used, but what can be understood by any person able to read a newspaper. Latin terms are simplified into the most common English. This part alone is very valuable to any person, especially those interested in stock, as it enables them

to understand thoroughly any disease which may affect any of the animals.

"Part 2 of the Course of Instructions deals on every disease and trouble that is known to turn up in the horse. These are arranged in systematic order from beginning to end, that is, all the diseases and troubles affecting a certain set of organs are treated in one chapter. The next chapter treats on all the diseases and troubles affecting another set of organs, and so on. The causes, symptoms and treatment of every disease and trouble is given in such a simple form that any child able to read can tell the disease and treat it even in the most acute cases. In the causes, it states plainly the different causes that are likely to bring the disease or trouble on. In the symptoms, it shows every symptom that the animal will show while suffering under whatever disease or trouble it may be suffering from. You are probably aware there are a number of diseases which have some symptoms the same in different diseases, and to an inexperienced person it might be hard to tell one disease from another, but in the symptoms given in every disease and trouble throughout the Course of Instruction, which every member of the Association receives, it shows plainly how to tell one disease from another, as there are some symptoms which are not noticed in one disease which are noticed in the other. In this way it is a very simple matter to be sure of what disease your animal is suffering from. In the treatment the most simple and best remedies are given. The medicines are measured out in spoonfuls and drops, which is a much more simple method than measuring medicines in scruples, grains, drams, etc. Every person can measure a spoonful of medicine; very few can measure a scruple or grain.

"It tells how to treat a case from the time the horse is taken sick until it is better. Not only what medicines to give him and how often they should be given, but how to nurse."

In part 1 "Not a big word is used but what can be understood by any person able to read a newspaper." Oh! joy! No more use for Gould's medical dictionaries. The whole of Chauvean or Strangeways is evaporated to dryness, as the chemists

say. It has had the technical juice squeezed out of it so that nothing remains but what "can be understood by any person able to read a newspaper." The jaw-breaking, brain-racking, technical terms of the anatomists have been banished into the fine ether of other worlds than ours. Any simpleton who can "read a newspaper" can understand this new work as it lays bare, we presume for the first time, the few simple threads on which anatomical science hangs. This reminds us of the stock in trade of the stupid Scotch blacksmith who became a physician in the Highlands. One of his former acquaintances met him by chance one day and asked him what his line of treatment was for a certain disease. He said, "calomy" (calomel). "Well, Sandy, what is your treatment for so-and-so?" (mentioning another ailment). "Oh, laudny" (laudanum). The old man had certainly learned the rudiments. When one wouldn't do he tried the other; and when the other wouldn't do he tried the first one, and so in the whole round of ills that flesh is heir to. How the anatomists would make merry over this book from the realms of fakerdom, which so teaches their science as to make it as easily understood as reading the morning newspaper. According to the advertisement the study of anatomy is not a matter of dissection and study throughout laborious nights and days. There are no "big words" to be remembered. Anatomy is to be reduced to its rudiments and applied like the lessons in spelling given by Mr. Squeers in Dickens' "Nicholas Nickleby." The boys were taught by Mr. Squeers to understand the meaning of window by saying win-der, winder; w-i-n win, d-e-r der, winder. Then they had to go out and wash the windows to be sure that they understood the meaning. The study of anatomy is just as simple according to the new plan. Anatomy is done up in the smallest package and when you have learned the words you apply them. It is as easy as falling off a log; as easy as reading the newspaper.

The advertisement continues: "Part 2 of the Course of Instructions deals on every disease and trouble that is known to turn up in the horse." This will startle the

professors of theory and practice of veterinary medicine as well as the professors of veterinary pathology. If the statement made in the advertisement be true, they can all learn much from the book and had better procure copies before the edition is exhausted. Notice the barnyard English, too, in which the advertisement is couched. Mr. Macawber in Dickens' " David Copperfield " was a gentleman who sat around, when without a job, " waiting for something to turn up." Every disease and trouble, " according to this advertisement, is something that " turns up," and is, in this epitome of veterinary science, " dealt on." The sentence we are criticising, it is patent, is a piece of tommyrot. With all our knowledge of the diseases of the horse, we do not know all that may appear in that animal. Equally true it is that all we do know cannot be expressed in as many octavo volumes, as this book, whatever it is, has pages. The advertisement is so written that the man to be gulled is led to believe that the book desired to be sold treats of all diseases of the horse in the fewest and simplest words possible. " The causes, symptoms and treatment of every disease and trouble are given in such a simple form that any child able to read can tell the disease and treat it even in the most acute cases." How fortunate it is that such books are appearing from the press. Our little children can understand them; and we can learn veterinary science, to use the language of the Psalmist, " out of the mouths of babes and sucklings."

The advertisement continues by saying that the book " shows plainly how to tell one disease from another, as there are some symptoms which are noticed in one disease which are not noticed in the other." We presume, then, it will be a great boon to students of diagnostics. Lean on the book and you will never be mistaken in your diagnosis. The statement here made in the advertisement is even more amusing than the mistakes made by dogmatic diagnosticians; for the diagnostician knows he makes mistakes, whereas the advertisement claims that no mistakes can possibly be made by the simpletons who study the book.

The book also is a boon to the professor of materia medica and his hard-pressed students. "The medicines are measured out in spoonfuls and drops." The advertisement does not say the drugs are poured into the animals' mouths with a spoon; nor does the animal get a rap on the head with the spoon as did Oliver Twist in Dickens' story when he asked for more porridge. But the only inference is that the book does not teach the use of powders or balls, as everything seems to be of the wet variety. What a comfort it is to think that the measurements are so simple and that a rusty spoon is the only means needed to dole out drugs.

Let the whole profession take cognizance of this advertisement. It is an illustration of the lengths some men go to make money. It is an illustration of a form of philistinism which is an affront to the profession. We should stop such fakes even if a trip-hammer is needed to do it.

"EVERYBODY MILKS IN IOWA."—At the Waterloo (Iowa) Dairy Show the following refrain was sung by the quartette with great eclat, and now all the boys and girls in that state are humming it:

EVERYBODY MILKS IN IOWA.

(*Tune: Everybody Works But Father.*)

Everybody milks in Iowa,
We all like the cow.
Pinning our faith to bossy
Has made our neighbors bow.
Everybody milks in Iowa,
Even Sister Rae;
Everybody does the milking
In I O A.

Everybody milks in Iowa,
Summer and winter time,
Makes no difference to Iowa,
They milk, rain or shine.
Soil is growing richer,
Debts are cleared away,
Just because they're milking
In I O A.

Everybody milks in Iowa,
Let me tell you that,
Buying auto-mobiles
With the butter-fat;
If the grain crops fail them
They don't move away,
Just keep right on milking
In I O A.

Everybody milks in Iowa,
Hear me, what I say,
Live on milk and honey
While the cows eat hay,
Mother's quit her washing,
So has Sister Ann,
Everybody's gone to milking,
Even my old man.

—(*E. T. Sadler, in Hoard's Dairyman.*)

CYSTICERCUS RANGIFERI IN ALASKA.

By S. A. Gruener, M.V.S., Kamchatka, Russia.

In 1892, the United States government at different points in Alaska began the policy of establishing reindeer stations with the purpose of introducing the reindeer industry to the native population. All the original herds of reindeer (Rangifer tarandus), were imported from Siberia. At that time, 1,320 reindeer were introduced from Siberia, and now, from these original reindeer, Alaska has a total of about 25,000.

If the reindeer should increase in the future as rapidly as they have hitherto, the reindeer industry will occupy an important place in the northern part of Alaska. Perhaps in the near future, reindeer-meat will be consumed in larger quantities. Therefore, the study of diseases of the reindeer, and especially the peculiar meat infections, would be of much benefit.

About reindeer diseases we know very little. The study of these diseases has only recently begun. Notwithstanding, the reindeer suffer badly from different diseases and different parasites, some of them already having been described by investigators.

With reindeer imported from Siberia were also introduced into Alaska certain diseases and parasites peculiar to these animals.

Last year (1910), I described in a Russian magazine (*Archive Vet. Med. Sciences,* 1910, No. 7, St. Petersburg), the bladder-worm, which I had found in reindeer hearts and muscles in Jakutsk Province, in the northern part of Siberia. The bladder-worm has a head with four tentacles and crown of 26-30 hooks. I most frequently find the bladder-worm in reindeer that look weak and ill.

In what way did the reindeer become infected with the bladder-worm? From what animal did it get the eggs of the tapeworm? What animal developed tapeworm in the intestines from the reindeer bladder-worm? In answer to these questions, we must say: until a more thorough investigation has been made, we cannot explain scientifically in what way the reindeer became infected with the bladder-worm nor the origin of the tapeworm.

In a large book about animal parasites written by Prof. J. Neuman, in French, but translated into English, we find something about the reindeer bladder-worm. He says that this parasite had been discovered in the flesh of reindeer which died in the Zoological Park in Paris, and that feeding the infected flesh to dogs produced tapeworms in the intestines of the dogs experimented upon. So far, this is all that we know about the parasite infections of reindeer.

The thought follows: can man be infected by eating reindeer flesh containing the bladder-worm? This is at present unknown. However, this possibility can be supposed because we know that some tapeworms, which usually live in the intestines of the dog, can be developed in the intestines of man if he occasionally eats the flesh of the same animal that ate the dog having bladder-worm.

This year (1911), I had the opportunity to inspect some of the reindeer herds in Alaska. While inspecting a large herd in Golovin (Seward Peninsula, Alaska), I noticed one small fawn which looked badly, was ill and lame. The superintendent of this herd decided to butcher the sick fawn, and several other reindeer for meat. All of the large herd of about a thousand reindeer was in very good condition and nutrition. We could notice only one sick animal, the small fawn which was butchered.

By an autopsy of the killed fawn, we found many bladder-worms in the heart, liver, muscles of the neck, shoulders and other parts of the body. In the peritoneum of the fawn, we found the same bladder-worms also, but larger than in the muscles and liver. Microscopical examination showed that there

was swimming in the fluid of the bladder the head of a parasite with four suckers and a crown of 26-30 hooklets, looking like the head of the cysticercus cellulosæ. It was the same which I had found in the reindeer of North Siberia.

The same bladder-worms were also found in the heart and in the peritoneum of one of the other butchered reindeer which was well-nourished and in good condition, but in very small quantities. This parasite, if present in large quantities is very injurious.

The injuries are brought about, not only by direct influence of the parasites upon the nutrition and removal of the blood or of nutritive substances, but also by the formation of poisonous substances which are contained in the fluid of the bladder, and so producing auto-intoxication of the animal or host. Thus the affection effects the general nutrition and causes disturbance and prostration.

There is a probability that man may be infected by the tapeworm if he eats rare reindeer meat, which contains the parasite.

Investigations about the transmission and infection of this vermin must be undertaken for two reasons:

First, the parasite is harmful to the reindeer, inasmuch as it affects the organism and intoxicates it.

Second, probably reindeer meat, containing bladder-worms (cysticercus rangiferi), could transmit infection to man and eventually tapeworm would develop in the intestines of the man who consumed rare reindeer meat.

It is necessary to remember that the tapeworm (tænia), which develops in the intestines of man is not as harmless as many people think. Sometimes the tapeworm can cause a great deal of trouble, and it is well known that there are cases in which tapeworm produces the death of the patient by vomiting.

Therefore, bladder-worm of the reindeer (cysticercus rangiferi), demands our attention, both as regards the increase and welfare of the animal itself and the danger of reproducing tapeworm in man.

CATTLE PLAGUE.

By Jacques E. Aghion, V.S., Veterinarian State Domaines, Sakha, Egypt.

Cattle plague is a highly contagious disease of bovines producing high fever, and characterized by an eruption of pustules on the mucous membrane of the mouth. According to Semner the affection is due to a streptococcus, which he cultivated from the blood and lymphatic glands of animals suffering from cattle plague. A calf inoculated with the cultivated virus died in seven days. The cocci were said to lose their virulence by successive cultivation, and a protective vaccine was thus obtained.

Now, by inoculating the virus, the disease manifests itself and causes the blood to undergo such a morbid change that the amount of fibrin is largely increased, while the amount of serum is decreased.

The period of incubation varies from four to eight days, at the end of which time the symptoms of the disease are well developed.

My purpose in writing this paper is not to describe the disease from a scientific point of view, but only from practical observations as seen every day in the field.

About a year ago I was called into different farms to see cattle suffering from what I diagnosed to be cattle plague. Losses were enormous, as many were lying dead and others suffering from the disease and showing the following symptoms:

Rise of temperature from 102, 103 and, in some cases, 104° F. This rise of temperature precedes all other symptoms. An eruption on the mucous membrane of the mouth and lower lip was seen. Loss of appetite; dullness; redness of the conjunctiva; typhoid state, that is, drooping head, hanging ears, etc.; slight cough; oppressed and difficult breathing; sunken eyes;

fœtid breath; diarrhœa; discharge from the eyes, nose and mouth; weak heart; grinding teeth; arching back; weakness in the limbs, and now the temperature rapidly falls down and the animal succumbs. I would like here to draw the attention of the readers to the fact that the above symptoms are not always present, but I was able in many cases to diagnose the disease by the rise of temperature, redness of the conjunctiva, eruption of the mouth and diarrhœa.

The history of cattle plague in Egypt dates as far back as 1840, when the first outbreak made its appearance, followed by that of 1865 and 1881, 1882 and 1883. The contagion was traced then to cattle imported from Russia. The disease stopped, to appear again in 1902, when it spread all over the country; no province in Upper or Lower Egypt was free from it; and it is very difficult indeed in some cases to account for the origin of the contagion; but I was fortunate in more cases than one to trace it either as due to butchering plagued animals, coming into actual contact with their blood, transmitting the disease to healthy animals by looking after or coming into contact with them, or by means of the flies which, after resting on affected animals or their offal material, their saliva, etc., fly about and alight on healthy ones conveying the disease.

Cattle plague runs a definite course and usually terminates fatally; still, few cases tend to recovery, and when such takes place the animal is rendered unsusceptible to another attack and remains healthy whilst surrounded with the plague.

The proper step to be taken so as to deal with eradicating an outbreak is, strict isolation of suspected animals; inoculation of healthy ones; burning and burying the dead or killed plagued animals; disinfect stables and all surroundings; prohibit all contact with the sick or suspected animals.

Post-mortem examination of some of the dead animals showed the following lesions:

Congestion of the mucous membrane of the mouth. The rumen impacted with undigested food, and in many cases a foreign body was found; patches of congestion and sloughing

of its mucous membrane was not unusual. Congestion and impaction of the third stomach; the fourth stomach was red and studded with superficial erosions. The intestines were marked with patches of red. Emphysema of the lungs was in most cases present. The heart was dilated and covered with petechial spots. Liver dark in color and gall bladder full of bile.

A DETAILED notice of the approaching meeting of the Colorado State Veterinary Medical Association will be found on page 408 of this issue of the REVIEW.

AGITATED Old Gent—Quick! My daughter is overboard! Save her, and she shall be your wife!

Blasé Person—Wait till a wave rolls her over and I can see her face!—(*Puck.*)

SHOEING HORSES AT HORSE SHOWS.—Horseshoeing competitions continue to be very popular at the summer shows, no matter what part of the country they are held in, says the London *Live Stock Journal.* This should, and undoubtedly does, mean that much useful knowledge is spread among those who have the care of horses' feet, than which there is no part of more importance. A well-made shoe, properly fitted onto a foot which has not been cut away at the sole or rasped thin round the walls, is the ideal of those who judge the work, and the country blacksmith who knows more than others can tell him is becoming rarer to meet.—*Rider and Driver.*

How long does a horse live? That question is now being raised in different stables and has received varying answers. One horse, lately owned by Joseph Guest, a Maryland farmer, was 42 years old, when given chloroform, a few months ago. Another is a Texas pony, owned in Iowa, now 43 years old. Both horses have been working steadily up until one year ago. It is reported that a work horse lived in Manchester, England, for 62 years, and died of old age. Such evidences of longevity bring up another question, and that is the value of a horse. The horse that lives throughout a generation and bears the burdens of his owner, is worth many dollars. One mare, in Kentucky, costing originally less than $100, lived more than a quarter of century and produced colts that sold for $18,000. What was she worth as a business investment?—(*Horn and Hoof.*)

REPORTS OF CASES.

BLACK TONGUE IN DOGS—BURSATTI IN HORSES—POLY-VALENT VACCINES.

By Fred W. Porter, D.V.M., Tampa, Fla.

On reading the October number of my Veterinary Review I was pleased to find Dr. Dalrymple's short sketch on "Black Tongue of Dogs." It is a condition that I am constantly called upon to deal with here in Florida, and it is rather evident that Dr. Dalrymple does not care to bother with it. I certainly do not blame him for that.

My observations do not agree with his, that the condition is chiefly confined to hunting dogs, or those kept in the country. I find it quite as common among my city patients as I do among dogs kept out of town. Moreover, while I have obtained many animals from the city pound for experimental purposes, I have never seen a case among dogs that were purely scavengers.

I note that Dr. Dalrymple says nothing as to the highly contagious nature of this malady. To me it is highly so, both by actual contact and from the use of yards or quarters, by healthy animals, where the disease has been present. I have on several occasions seen the disease develop in bulldogs placed in yards months after the original case had died, the yard not having a dog in it in the interim. Oral infection, from the devouring of carrion, is contradicted in this region by the fact that our woods do not contain carrion. Even a carcass as large as that of a horse or cow is taken care of within a remarkably short time by our carrion crow, buzzards and red ants. What is left is thoroughly dry-cured.

As to treatment, I must admit at the start that most of my cases die. However, when I can find an owner that will give the necessary nursing and follow directions, I have been successful in persuading a fair number to get well. Above all things, keep

them outdoors; I have never known a case to recover that was kept in a house. General disinfection, antisepsis and, still more important, not allowing the animal to starve to death, is the line I follow. U. S. P. formula, $HNO_3 + (HCl)_4$, ten drops to a half pint of drinking water, and allow no other drinking water; will be found a very thorough prophylactic as well as a curative. It can be used to advantage among all dogs, whatever their condition. Where an animal cannot swallow, it can be given one or two drops in a tablespoonful of beef broth, administered from four to six times daily.

My last case I pronounced fatal when it was presented for treatment. Ropey salivation, no deglutition, necrotic breath, emaciated and almost unable to stand. The owner was very anxious to try something, so we got some Hamburger steak, made bolus of it about the size of a marble and dropped two or three of them down his throat at intervals of a couple of hours. It took forty-eight hours to get him where he could voluntarily take food, and then he needed coaxing. But he went home convalescent in a week's time.

As to serums, I have tried them, but as yet have found nothing to depend upon.

To leave the dog and go among the larger animals, some months ago you reported some cases of "bursatti" from California, and in the current number, page 116, it is again spoken of. Here in Florida it is a very common condition during our annual rainy season. We know it under the term "leechs," and it has several forms. About two years ago I had a case of canker of the sole that I was treating with autogenic vaccines. A leech sore, almost surrounding the fetlock, was a concurrent condition. To it I was paying no particular attention beyond dusting it with drying powders. As the case progressed I noticed that the leech had ceased to be an ulcerating sore and showed healthy healing. Both conditions got well about the same time and the animal has been in service ever since, with no recurrence. Since then I have treated numerous leech cases with poly-valent vaccines, both stock and autogenous. And they simply get well. I have seen no mention of this application of serum therapy elsewhere and simply give it that others may try it out.

These observations are from a purely practical viewpoint. I am too busy to get at the scientific niceties of the case, and anyhow, in practice, what the owner wants is a well, serviceable animal.

ADENOID GROWTH IN NOSTRIL.*

By F. J. TRAFTON, V.S., Jefferson, Iowa.

Subject.—A draft colt three years old.

History.—The animal came up after being turned out in stocks a couple of weeks with a growth which had the appearance of a large red apple, half of which protruded from the nostril; the stenosis being complete on that side and partial on the right side. The nose on the left side was swollen to just below the eye. The eye was also affected, as the mucous membranes were icteric in color and some discharge trickled over the cheek, indicating an association with the growth in the nostril.

Diagnosis.—After placing the animal on the operating table, securing same in proper position, I administered one H.M.C. tablet, formula A, and then gave chloroform enough to complete the anæsthesia. Now I proceeded to examine the nasal cavity and growth to ascertain the origin and extent of same. On palpation I found the lower two-thirds of the nostril emitted a dull sound, as though it was a solid mass, and above this the sound was hollow and the parts very tender to touch. I then passed my index finger next the septum of the nose and followed it to the lower end of the calcified portion of the septum, and there I found an attachment, and further examination revealed a narrow attachment to same for about three inches, then it changed its course. I then trephined the nasal cavity to the maxillary bone within two inches of the median line, making two cuts and taking out the middle with a chisel and saw; then I inserted my finger and found the growth to extend to the upper outer portion of the nasal cavity just below the eye, the attachment being about a half inch in diameter.

Prognosis.—Reserved.

Operation.—I removed the attachment to nasal septum by means of scissors, then removed the upper portion by means of torsion and a curette and scraping the growth loose and using torsion at the same time until it was entirely removed from the bone. I then arrested all hæmorrhage and this completed the operation.

After-Treatment.—I painted the surface on its upper attachment with tincture of iodine, U. S. P. disinfected, and plugged trephine opening with absorbent cotton saturated in creolin solution, used swab and applied tr. iodine to inner surface of nasal

* Read before the Missouri Valley Veterinary Association, Omaha, 1911.

cavity and removed to box stall and repeated treatment twice a day for twenty-one days; and when the animal left the hospital it was completely cured except the trephine opening, which was treated by owner of animal at home. This is the first case of its kind brought to my notice since I have been in practice.

Cause.—Who can advance a cause? Was it hereditary, as in the human family, or not?

MACROSCOPIC LESIONS IN MARE KILLED BY ELECTRIC SHOCK.

By JOHN F. WINCHESTER, Lawrence, Mass.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

The following macroscopic lesions of a white mare that was killed by contact with a rail of an electric street railroad may be of interest. This occurred in front of the power station, the animal being between a moving car and the generator.

All visible mucous membranes were cyanotic. The mare was on her right side; she had passed urine and feces at the time or after falling. No bloating. This condition was observed about an hour after death, at 9 p. m., December 22, 1907.

The following morning, December 23, the autopsy revealed the following:

Bloated, cyanosis of all visible mucous membranes and the peritoneum: pupils dilated. Removing the skin, the radial veins of the right hind leg were hyperæmic, also the larger ones; the blood fluid and dark.

The corresponding vessels of the left hind leg not so pronounced; but when the veins were cut the blood flows freely.

The superficial blood vessels on the left side of the neck hyperæmic, while those on the right side were ecchymotic. The mucous membrane of the trachea was ecchymotic in the thoracic or lower third. Ecchymosis on large colon, kidneys, spleen, liver and lungs.

Radials of pericardium hyperæmic, and this sac contained a small amount of amber colored fluid.

The left heart held a little fluid blood beside a small, amber-colored clot. The right heart empty.

Post mortem showed a rupture of diaphragm; the brain on exposure showed well-marked hyperæmia, especially at the base of the cerebellum.

Both choroid plexi hyperæmic and the substance of cerebrum ecchymotic.

CALCULUS IN A MARE.*

By J. F. Carey, D.V.S., East Orange, N. J.

Mr. President and members of this association, when I agreed to read a paper at this meeting I was hardly aware of the time and work it would require, in order to present something worth your time and attention.

It was somewhat difficult to select a subject, not because of lack of material, for we all know there are plenty of diseases in veterinary medicine. But to select something that I could treat with brevity and at the same time bring something of interest to you. I finally decided to write upon a case that I had under treatment.

I was called to see an aged grey mare suffering presumably from colic. Under treatment pain subsided. The following day she was attacked with same sort of pain, difficulty in urinating and bowels slow to operate.

The rectum was covered with a mass of melanotic tumors, and occasionally when the bowels would move, from the consistency of same, and fetid smell, I concluded that trouble was due to obstruction by the tumors, and so informed the owner. However, mare lingered along for three weeks in periods of pain and ease; some days bowels moving and some days no movement; and when bowels did pass, the consistency of same was very soft, black and fetid. At the end of three weeks' time, the mare was again attacked and died.

Post mortem was held and upon search in the large intestines instead of melanotic tumors a calculus, weighing 3¼ pounds was found, which I present before the meeting this evening.

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* Presented before the Essex County (N. J.), Veterinary Medical Association.

RABIES IN MAN.

By Dr. W. B. PROTHERO, Johnstown, Pa.

The patient, a coal miner, visited the office of Dr. Keiper in Johnstown, Pa., September 28, 1911, complaining of illness, but apparently not of a serious nature. The doctor prescribed treatment and dismissed the case as nothing unusual. The following morning about 3 o'clock Dr. Keiper was called and found his patient bound with ropes and showing signs of violence. He suspected delirium tremens and ordered the man to be taken to the Johnstown City Hospital. The condition of the patient became worse and rabies was suspected. The patient had been bitten by a dog some weeks previous. The patient was about twenty-eight years of age and bound by each wrist to a small iron bed.

The similarity of symptoms in man and animal were plainly shown. He assumed a sitting position, reaching each way as far as his bonds would permit, continual working of jaws apparently from spasmodic contractions of the muscles, some dribbling of saliva, attempts to bite were due to involuntary muscular contractions, eyes wide open, and a straight staring look. When a glass of water was held to his mouth he attempted, almost ravenously, to drink, but this effort brought on frightful paroxysms. Emissions of semen escaped from an erected penis. He had no knowledge of the nature of his disease, but at intervals would articulate a few words well and beseechingly request that he be killed. He seemed to understand what was said and gave his age correctly when asked to do so. He realized that the shackles that bound him were fastened with buckles and attempted to unfasten them. The voice was very much changed. The respirations were hurried and much aggravated during spasms. He was given sedatives in conjunction with chloroform inhalation. Death took place at six o'clock the following morning.

DR. S. H. GILLILAND, of Marietta, Pa., has accepted the Directorship of the Pennsylvania Department of Health Laboratories, located at No. 2000 Arch street, Philadelphia. Dr. Gilliland has the REVIEW's best wishes in his new field of usefulness.

ABSTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

By Prof. A. LIAUTARD, M.D., V.M.

FRACTURE OF THE TIBIA IN SIXTEEN-YEAR-OLD HORSE—RECOVERY [*A. Goodall, M.R.C.V.S.*].—He was found in the morning with the fracture on left hind leg, which was diagnosed as located in the lower third of the bone without any displacement. The case occurred in a small up-country town of East Griualand, where slings had to be improvised with wool bales padded with sheep skins. The animal was placed in those and showed himself very quiet in them, never struggling. A padded pole was placed just under the buttocks so that the horse could sit on it for hours and rest. The leg was enveloped with cotton wool and bandaged from the stifle down to the hock with stout canvas bandages over which ordinary melted pitch was smeared, on several layers and when set was as hard as a board. The limb was bandaged with ordinary bandage and also the other legs. In four weeks, the horse put some weight on his leg, in six weeks he stood firm on it and in eight the dressing was removed. His recovery was uninterrupted. Two injections of morphia in the first two days and now and then occasional doses of sulphate of magnesia were the only medicinal treatment given. The animal, which was a valuable stallion, served twenty-five mares the following season. He died since with septic poisoning from a wound on the other leg. The examination of the tibia showed a shortening of 2½ inches on the injured leg.—(*Vet. Record.*)

EQUINE MELANO-PSAMMOMATA OF THE BRAIN [*W. M. Scott, F.R.C.V.S.*].—Aged grey mare worked well up to day of illness. Symptoms: suddenly attacked, restlessness, profuse perspiration; various nervous manifestations, extremely irritable, shaking of the head, pushing to the wall, gnawing, etc. Mucous membrane injected, pulse full, temperature 104° F. Pupils dilated. Retinal vessels distended. Cerebral symptoms of hyper-

hœmia subsided at intervals and followed by depression and coma. On the second day, paresia took place, ears muscles paralyzed, also those of mastication and deglutition. Amaurosis is present. Locomotion staggering. The animal remained in that condition for few days following, when she improved and was able to go to work after a while. Relapse took place, when in another attack the mare died. Post mortem showed basilar artery varicous, organized clot at the branching off of the internal carotid, in each of the hemispheres of the cerebellum there was a neoplasm, weighing 3¼ and 2 ounces, respectively. They were dark grey, on section varied in color from dark grey to black and on squeezing gave escape to inky-colored fluid. The mare had no melanotis round the anus or in other regions. The treatment consisted in purgatives, aconite, nervous sedatives, alteratives, strychnine and injections of saline water.—(*Vet. Journ.*)

KERATOMA FROM A PICKED-UP NAIL [*Capt. A. J. Williams, F.R.C.V.S., A.V.C.*].—Aged cob had a punctured wound, near-hind foot from picked-up nail. Treated and sent to work in 18 days—from this at various intervals became lame with suppurating gathering which was relieved by indicated treatment, until finally it resulted in a condition which would require removing a large portion of the wall and as the animal was too old, and not worth treatment, he was destroyed. Post mortem examination revealed a keratoma growing from the horny lamina, extending from the sole to the cutigeral groove with a cavity running up the centre of the growth.—(*Ibid.*)

FRACTURE OF THE 5TH AND 6TH LUMBAR VERTEBRÆ [*By the same*].—Five-year-old cob running in a race dropped his hind legs in a small ditch, fell and was unable to rise for a while. After being up, he shows considerable pain, moves in putting little weight on the near-hind leg, has occasional knuckling at the fettock, crepitus is heard about the quarter region. After laying down, complete paralysis was manifested and the animal was destroyed. Post mortem: Superior spinous processes of the 5th and 6th lumbar vertebræ were broken off close to the neural arch, portions of the lateral walls of the neural arch of the 5th vertebræ were broken off and also that of the 6th completely. The extremities of the transverse processes of both bones were fractured on the left side.—(*Vet. Journ.*)

EVERSION OF THE BLADDER IN A MARE [*Prof. Frederick Hobday, F.R.C.V.S.*].—A Shire mare has a complete eversion of the bladder after unexpectedly having foaled of a living foal. Attempt to reduce the eversion could not be made, notwithstanding the administration of morphia and the application of hot water. After 48 hours that the eversion had taken place, the mucous membrance was thickened and inflamed, the ureters were visible and the urine collected in a pouch of the vagina from which it was ejected in a squirting stream. Hot chinosol solution and massage were resorted to and reduction attempted. At first with the fingers and the wooden end of an ordinary horse enema syringe and when the length of this was found insufficient to return the fundus of the bladder through the urethral orifice, it was replaced by a pessary composed of a small rounded glass pestle firmly tied into the end of a piece of garden hose pipe. All this sterilized and vaselined was inserted into the fundus and the reduction completed. Cold chinosol lotions into the bladder completed the cure.—(*Ibid.*)

SUB-SACRAL ABSCESSES [*H. D. Jones, M.R.C.V.S.*]:

First Case.—Six-year-old gelding, returned from military manœuvres with his tail slightly thickened and showing several small abscesses on the under surface. He had been docked, not recently, but the stump of the tail appeared healthy. There were also two small abscesses at the root of the tail. These were opened, and discharged pus suspicious of Botriomyces. Tinct. of iodine externally and iodide of potass. form bases of treatment. However, the tail enlarged and puss became more abundant. Animal shows signs of systematic disturbance and amputation of the tail was resorted to. It was removed as close the sacrum as possible. The stump was found full of sinuses with pus in great quantity between the skin and the vertebræ. After six weeks animal has recovered.

Second Case.—Five-year-old grey gelding has the middle of the tail badly bruised. In a few days it began to swell. Several incisions let out a large quantity of pus. Numerous abscesses appeared on the under surface of the tail and the tendency to spread was always in an upward direction. Soon pus appeared at the sides of the anus and could be squeezed out from under the sacrum. Amputation had to be resorted to, also as close to the sacrum as possible. The hemorrhage was difficult to control, but the animal got entirely well after about seven weeks.—(*Vet. Record.*)

HYPODERMIC INJECTIONS OF QUININE FOLLOWED BY TETANUS [*T. Lishman, Lieut., A.V.C.*].—Record of a case of acute biliary fever accompanied with temperature of 106° F. on four occasions. On alternate days, three subcutaneous injections were made of bihydrochloride of quinine. Each seat of inoculation on the following day showed a painful diffuse swelling about 9 inches in diameter. These swellings were surrounded by indurated periphery and became fluctuating. Lanced, they gave escape to one or two ounces of clear fluid, leaving a cavity with walls indurated. After a few days, a certain amount of sloughing took place in the subcutaneous tissue round the cavity. Ten days after these manifestations and from the day of the first injection an attack of tetanus set in, which was so severe that the animal had to be destroyed. The author states that most particular care had been taken with regard to asepsy and that the quinine had been dissolved in boiling distilled water which had been allowed to cool slowly.—(*Vet. Record.*)

FRENCH REVIEW.

By Prof. A. LIAUTARD, M.D., V.M.

DYSTOKIA IN A LIONESS—ANTE-PARTUM UTERINE LACERATION—PERITONITIS—DEATH [*M. Mellis, Sanit. Veterinarian*].—This animal was four years old and primiparous. One morning she had a rupture of the placenta and escape of its contents. In the afternoon she is uneasy and late in the evening a fœtus has its hind quarters hanging out through the vulva, held by its thorax; and notwithstanding violent efforts, the lioness cannot expel it. With much difficulty the animal could be secured and the fœtus was pulled out with the envelope. It was dead since one or two days. Although the animal was somewhat relieved, the sequelæ did not look very favorable. The animal refused all food, solids or liquids, constipation set in, the abdomen became tympanitic, vomiting took place and the animal finally died. The abdomen contained some blackish liquid, and the organs had a dark greenish coloration; they were the seat of general congestion. The uterus swollen, blackish and thickened had the right cornua larger than the left. On the right and on the level of the two horns there was a solution of continuity in which was engaged the bone of the cranium of the second fœtus, whose body was in the right horn. As some few days before, while working with other animals, this lioness had been squeezed

against a wooden partition, it is probable that at that time the rupture of the uterus took place.—(*Rev. Veter.*)

QUADRUPLE GESTATION IN A MARE [*Capt. Chauvain, Army Veterinarian*].—Covered the 19th and 22d of May—she refused the stallion on the 29th, but becoming in heat a few days later, she is a last time mounted on the 5th and 8th of June. In March following, after nine months and a half of gestation, she aborted of a fœtus as big as two human fists, surrounded with a sticky large mass in a putrefied envelope similar to that of an ordinary colt. About fifteen minutes later, she had another male colt, a little smaller than a hunting dog; he just gave a breath and died. Twenty minutes later, she gave birth to two other colts, immediately one after the other. One, a bay male, was like the second, but smaller. He was not alive. The other was a brown filly, bigger than the others and full of life for twenty minutes, moving her legs, her tail and the head and neck slightly. After such laborious delivery, the mare remained several days somewhat depressed, but soon got over it.—(*Rec. de Med. Vet.*)

MELANOTIC TUMOR AND FACIAL PARALYSIS IN A HORSE [*Mr. A. Daire*].—Light grey horse, aged 28 years, had difficulty of mastication. Teeth are fixed. After a few months, although he has improved and gained flesh since that operation, he again refuses solid food and seems unable to work as well. His teeth are in good condition. Hay is offered to him, he takes hold of it and soon lets it drop in the manger. Suspecting a melanotic tumor on account of the color of the animal, a close examination is made of the parotid region and on the left side, along the border of the lower maxillary is detected a hard body, bosselated, as big as a nut. The superior lip is drawn towards the right. The tumor is evidently pressing upon branches of the 5th pair of nerves and some paralysis is the result. The prognosis appeared serious as the neoplasm may extend deeply. A friction of absorbing nature was made and fortunately followed by an arrest in the development of the tumor, thus relieving the commencing paralysis and the difficulty of mastication.—(*Rec. de Med. Vet.*)

ACTINOMYCOSIS OF THE INTERMAXILLARY BONE COMPLETELY CLOSING ONE NOSTRIL [*P. Chausse, Sanitary Inspector*].—Four-year-old steer, in fair condition, presented this interesting case. Ordinarily the disease starts on a level with the first upper or lower molar teeth, inoculated in the alveoli when those change with the progress of dentition.

In this animal the trouble is altogether at the extremity of the intermaxillary bone. The inoculation has taken place on the left and external side of the incisive bourrelet, that is through a very hard resisting tissue, yet exposed to injuries at the time of prehension of food. There is a point of inoculation, a kind of ulceration of the mucus, and from the incisive bourrelet the growth has extended to the bone, which is hypertrophied, and gives the nostril a peculiar appearance, forming a tumor closing it entirely. The microscopic examination revealed the true nature of the lesions. The animal had some difficulty in breathing and taking hold of his food, but at the same time did not seem to be much annoyed by this peculiar location of actino-mycosis.—(*Bullet. de la Soc. Cent.*)

PRIMITIVE ULCEROUS TUBERCULOSIS OF THE SKIN AND SUBCUTANEOUS TISSUE IN A COW [*Mess. E. Pecard, Adjunct Professor, and J. B. Vittoz*].—This in an exceptionally rare lesion observed in a Normandy cow, aged seven years, which since six weeks has had a swelling on the left side of the thoracic cavity. It is as big as the fist, bosselated, hard, adherent to the skin, but movable on the deep muscular layers underneath. In its highest point the skin is ulcerated and there are two fistulas from which ooze thin abundant pus. Round and back of the tumor smaller ones are felt. The precrural lympathic glands are hypertrophied. Nothing is abnormal in the respiratory apparatus. Tuberculosis is diagnosed and confirmed by microscopic examination and by tuberculine test. At the post mortem, the tumor was found adherent to the panniculus muscle and surrounded by numerous small tubercles. Smaller subcutaneous nodules are found in condition of diffuse caseation. The precrural glands are the seat of numerous tuberculous lesions. The other glands through the organism are more or less hypertrophied, except those of the digestive apparatus and of the lungs which are in appearance free from infection. The isolated case of ulcerative dermatitis of tuberculous nature was evidently a primitive lesion. —(*Bullet. de la Soc. Cent.*)

ITALIAN REVIEW.

By Prof. A. LIAUTARD, M.D., V.M.

GIANT CELLS ANGIO-SARCOMA IN A CHICKEN [*Doct. G. Lisi*].—A hen, aged five months in good condition was observed

losing her appetite and breathing with difficulty. After a few days these symptoms became more serious and the animal lost flesh rapidly, being soon in a state of marasmus. The animal was killed, and sent to the author for autopsy. The abdominal and thoracic cavities were the seat of the lesions. In the former there were on the lower border of the left side of the diaphragm, two tumors of different sizes. The largest measuring three centimeters in diameter and the other two. On the right side and in the same position there was a smaller tumor. In the thorax in front and close to the cardial auricles there was a tumor of the same kind and again another near the vertebral column opposite the first dorsal vertebræ. There were no other lesions in any part of the carcass. The tumors were surrounded with a delicate membrane of connective tissue and on section had a granular aspect with a pale, rosy coloration. Formed of three concentric layers, the examination with the microscope revealed their nature, that of giant cells angio-sarcoma, a lesion rather rarely observed in our domestic animals.—(*Il Nuovo Ercol.*)

GRANULAR VAGINITIS IN COWS [*P. Stazzy*].—After some bibliographic notices, the author passes a concise review of the etiology, symptoms, histology, etc., of the disease and arrives at the following conclusions:

1.—Keep as much as possible at liberty in good pastures all the cattle and specially the animals that are in advanced pregnancy.

2.—Disinfect thoroughly by washing with soap and soda the hind legs, thighs, tail, feet of the animals.

3.—Disinfect with boiled and slacked lime the stalls and harness.

4.—Wash the bull before and after the mounting of the cow with solution of lisoform or other antiseptic.

5.—Have the animal properly treated by a veterinarian; stopping the treatment when they are in heat.

6.—During the period of heat and specially a few minutes before the cow is served, make an intra-vaginal injection with tepid solution of carbonate of soda.

7.—Not to use any medicamentous bougies or pessaries with the cow. If the animal needs it, ointment of belladonna or some non-irritating antiseptic may be resorted to.

8.—Keep off from the stables any animal with chronic metritis or that which is no more in heat.

9.—An injection of watery solution of tincture of iodine shall be made in the uterus after delivery to disinfect it.—(*La Clinica Veterin.*)

AN ABNORMAL CASE OF UTERINE TORSION IN A COW [*Dr. Ottorino Mancinelli*].—Six-year-old cow has been due to deliver some time. Some twenty days ago she has shown some peculiar manifestations, which, however, proved negative and she apparently recovers. But now she seems to have colic, since a few days she makes expulsive efforts, and when these stop she appears less lively and her appetite is failing. When called the author finds her lying down, pulse is weak, respiration accelerated, the body is covered with cold perspiration. The ears are cold, vulva swollen—mucous membrane congested. When examination is made per vagina, the condition revealed, folds at the neck which justify a diagnosis of *incomplete torsion from the right to the left.* The fingers have passed partly through and felt the feet of the fœtus, but not sufficiently to secure them with ropes. Rolling treatment is applied in the ordinary way with all attention and care possible. But the unfolding seems impossible and after a painful attempt lasting about five hours the cow dies. At the post mortem lesions of peritonitis were found in the abdominal cavity. But the interest was on the condition of the uterus, which was cyanotic in color and the seat of peculiar twisting. The left cornua contained the fœtus and showed two torsions. One incomplete nearer the vagina had a direction from right to left and the other nearer the posterior end of the organ at about 25 centim. from the first, leaving between the two a space and reducing the cavity of the horn which was thus divided into two pouches. In the posterior, which was the smaller, there was the front part of the fœtus, head, withers, neck, shoulders and anterior extremities. In the anterior sac, was the balance of the body, back, abdomen and hind leg. The fœtus was well formed, rather of small size, with all the hairs removed and a beginning of maceration. He was dead probably since 10 days. —(*Il Nuovo Ercolani.*)

INVAGINATION OF THE COLON IN A STEER [*Dr. Arturo Sciavelli*].—The symptoms exhibited by the animal are thus described by the writer. At first the animal manifested loss of appetite, diminution of rumination, great thirst, fullness of the left flank, eructations, tympanitis, defecations small and rare. Later the condition became aggravated. Complete refusal of food, arrest

of rumination and defecation. Colic at first gradually severe and thus subsiding little by little after lasting several hours. The animal assumed frequently the position of a dog sitting on his rump. When standing up the hind legs were brought under the body and the back was arched. Walking was slow, difficult, the hind legs kept apart. Rectal examination revealed an empty rectum, no feces but some mucus and clots of blood. In the fore part of this cavity, downwards and to the right there was felt a cord, sausage-like body, hard, irregular, quite big, which indicated an anatomical alteration of the intestine. Rather than resort to a surgical operation, the steer was sent to the butcher. At the autopsy, there was found some little serosity in the abdomen, with the contents congested. The invagination was involving part of the colon, some 28 centimeters long, the cavity of the intestine being reduced to merely a small fissure completely blocked up by blood. All the other contents of the abdomen were healthy.—(*Il Nuovo Ercol.*)

DIFFUSED ECHINOCOCCOSIS IN A STEER [*By the same*].—Record of the post-mortem examination made where a large number of echinococci cysts were found in a steer that had died suddenly. The animal was six years old, in perfect condition and had never presented any apparent signs of illness.

In the abdominal cavity, two cysts were found, free, as big as a hen's egg, there were seven others adherent to the mesentery and the peritoneum. They varied in size between that of a pigeon's egg to that of a nut. The stomach and intestines were normal. The liver that weighed 16 kil. 950 contained a large number of cysts, principally on the right lobe, where they had collected and gave it the aspect of a small cauliflower. Only one cyst was found in the spleen. It was as big as the fist of a boy. The pancreas and kidneys were healthy.

In the thoracic cavity: the lungs were literally packed with cysts, some of which were the size of a man's fist. The gathering of the cyst was such that on their surface the lungs were irregular, bosselated and squeezed down. In the heart, the external appearance seems sound, but in the thickness of the walls of the left ventricle there was a very large cyst. There was one also near the left auricle with two others looking towards the auricular cavity. There were none in the brain. It is quite surprising to find an animal so extensively diseased and yet having all the appearance of good health as this steer had.—(*Ibid.*)

BIBLIOGRAPHY.

MICROBIOLOGY.

MICROBIOLOGY, by Charles E. Marshall, Professor of Bacteriology and Hygiene, Michigan Agricultural College, Octavo of 724 pages, with 128 Illustrations. Philadelphia, P. Blackiston's Son and Company, 1911. Cloth, $2.50 net.

This work is designed for students, and its plan has been to furnish basic principles, to train the mind in logical development and adjustment, and to prepare the student to undertake an intelligent study of strictly professional or practical subjects. With this in mind, the text has been divided into three distinct parts: *Morphological and Cultural,* or that which deals with forms and methods of handling; *Physiological,* or that which deals strictly with functions, the key to the applied; and *Applied,* or that which reaches into the application of the facts developed to the problems met in the study of professional or practical affairs of agriculture or domestic science. The latter calls for the treatment in such a manner as to make it basic to the interpretation of such subjects as air impurities, water supplies, sewage disposal, soils, dairying, fermentation industries, food preservation and decomposition, manufacture of biological products, transmission of disease, susceptibility and immunity, sanitation, and control of infectious or contagious diseases. All progressive veterinarians, physicians, sanitarians, scientific agriculturists, and many other scientists are *students* of the subjects enumerated above; and embraced in *Marshall's Microbiology;* hence its value to these several classes of *students.* Realizing the breadth of a work under the title of *Microbiology,* the editor surrounded himself in this undertaking, with no less than nineteen collaborators, or contributors; all men of national or international fame. So that the work is especially valuable because each subject is treated by a *specialist.*

It would be impossible in a review of this kind to give all the authors of the several divisions and subdivisions of the subject under consideration, but we believe it will suffice for most of our readers, to give the names of those that have contributed

to this work, in order for them to judge of its character and its scope. We therefore append them:

E. T. Bioletti, Berkeley, Cal.; R. E. Buchanan, Ames, Ia.; M. Dorset, Washington, D. C.; S. F. Edwards, Guelph, Can.; W. D. Frost, Madison, Wis.; F. C. Harrison, Macdonald College, Can.; E. G. Hastings, Madison, Wis.; H. W. Hill, Minneapolis, Minn.; W. E. King, Detroit, Mich.; J. G. Lipman, New Brunswick, N. J.; W. J. MacNeal, Urbana, Ill.; E. F. McCampbell, Columbus, O.; Earle B. Phelps, Boston, Mass.; Otto Rahn, East Lansing, Mich.; M. H. Reynolds, St. Paul, Minn.; W. G. Sackett, Fort Collins, Colo.; W. A. Stocking, Ithaca, N. Y.; Charles Thom, Storrs, Conn.; J. L. Todd, Montreal, Canada.

As the fields of the physician, veterinarian, sanitarian, and agriculturist all border on each other, and merge into each other in some instances, it can be readily seen how the subjects treated in this work are of equal importance to each of them; vitally important in fact, to *all* of them; and we predict the necessity for a second edition in the very near future, as the demand for this work must of necessity be very great.

STEDMAN'S MEDICAL DICTIONARY.

STEDMAN'S MEDICAL DICTIONARY, by Thomas Lathrop Stedman, A.M., M.D., Editor of Twentieth Century Practice of Medicine; Editor of the *Medical Record*. Octavo of 1,000 pages, with 250 illustrations. New York, William Wood and Company, 1911.

This up-to-date medical dictionary comes to us from the pen of a busy physician; practitioner and editor; a man with a vast amount of experience in both fields, and consequently one well versed in both the practical and technical side of medicine. The work suggests at once broad-mindedness and conservatism. In short the product of a man well-grounded in the art and science of medicine. Realizing that medicine touches other sciences at so many points, the author has endeavored to include definitions of all chemical, botanical, dental and veterinary words, which a physician is likely to meet in reading; so that *Stedman's Medical Dictionary* is not only a rich field of education for both the physician and veterinarian as a work of reference in the usually accepted function of a dictionary, but makes an extremely interesting work for perusal and reading by those in search of scientific

knowledge. Special attention has been paid to the etymology of the words used in medicine, the author appreciating the fact that nothing aids so much in fixing a definition in one's memory as a knowledge of the formation of the term; therefore the chief sources of our language, Anglo-Saxon, Latin and Greek, and to a slight extent Arabic, have been indicated under the main titles and, where necessary under subtitles as well. And, while the author regrets the elimination of Greek in our schools, he nevertheless realizes that only a small percentage of even well educated physicians in the present age can read Greek characters; therefore in the case of Greek sources, he has given them Roman letters; which (although he explains that he yielded under protest), we believe is a very great advantage. The book is well illustrated, embraces 50,000 titles and has an appendix on weights and measures, including the comparative quantities expressed by the metric system and the United States apothecary system. The work is handsomely bound in flexible green leather covers with gold lettering, and is of inestimable value to veterinarians, physicians, dentists, in fact any one in pursuit of scientific knowledge.

VETERINARY DISSECTION GUIDE.

Professor Septimus Sisson, S.B., V.S., professor of comparative anatomy in the Ohio State University, and author of *"A Text-Book of Veterinary Anatomy,"* has just issued a *"Veterinary Dissection Guide"*; part I. of which, has just come into our hands. This little guide was originally intended for the use of students in the College of Veterinary Medicine of the Ohio State University, where it was used in the form of mimeograph sheets, but has taken its present form in response to requests of several teachers in other institutions.

Part I. has 54 pages of instruction in dissecting and 56 blank pages interleaved between the reading matter for notes or sketches by the student as he pursues his dissection and studies. The instruction embraces the care of the part being dissected, instruments to be used, clothing to be worn in the dissecting room, the steps in dissecting each region, etc., etc. The book reads like an instructor on anatomy talking to a dissecting class, asking them questions as to what they have found in this region and that, and instructing them as to what they will find in other regions as they proceed. It has an advantage, however, over an

instructor, in that it will never ask the question nor give the instruction until the moment that the student reaches the point where he is ready for the question or the instruction. It not only reduces the work of the instructor very materially, but just as materially enhances the student's ability to learn. No veterinary student should be without this "*guide*" if it is possible for him to procure one.

GOVERNOR OSBORNE, of Michigan, has appointed Dr. J. E. Ward, of Perry, that state, a member of the state board of veterinary examiners. We congratulate the doctor, and feel sure that he will have only the interest of the good name of his profession at heart, in performing his duties in connection with the board.

HORSE JUDGES AND VETERINARIANS.—During the past season, judges in the horse rings at Western Canada's big exhibitions have had some experiences they will not forget for a while. Of course, judges do not expect smooth sailing where competition is keen. They realize that opinions differ, and that practically every exhibitor has a following who look upon a certain horse with prejudiced eyes.

There is one point, however, on which there should be no room for difference of opinion. That point is *soundness*. If the fair circuit of 1911 can be taken as a criterion, it is evident that at least some judges do not know what constitutes an unsoundness in draft horses. It is necessary only to call to mind that the individual was good enough to win first or second, both at Winnipeg and Brandon, and then was in the "also rans," the first when at Regina, and, again, at the top the second week with a different judge in charge, to prove this assertion. Either in one case or in three cases, the men entrusted with passing judgment on high-class animals made a mistake as to soundness.

It is just such happenings as these that lead us to remark that only competent veterinarians should be allowed to say whether or not an animal is unsound. Could it not be arranged that when judges have any suspicion of an unsoundness they can call in the official veterinarian of the exhibition association and have him settle the point. When a man exhibits a pure-bred horse, he does not want men who are not altogether qualified to pass opinion pronouncing the animal unsound—(*Farmer's Advocate, Winnipeg*).

CORRESPONDENCE.

Publicity as a Spur to the Veterinary Colleges to Prepare Their Men to Pass the Examinations of the State Boards of Veterinary Examiners.

Chicago, November 8, 1911.

To the Editors of the American Veterinary Review:

Gentlemen—The *Journal of the American Medical Association,* and similar papers in the medical profession, are accustomed to publish, from time to time, lists of the number of persons from each medical college who passed the examinations for license in each state in the Union, and the number who failed to pass. The names of the persons who passed or failed, of course, are not thus promiscuously published, as this would only be mortifying to those who failed and might unduly puff up, with the pride of the gaudy peacock or the noisy gander, those who passed. This custom has been productive of great good, for medical colleges have come to vie with one another to see which ones would get the most of their graduates to pass state board examinations, particularly the boards difficult to pass. The effect has been wholesome upon the colleges and the students, for the one strained every nerve to equip their students to pass any board, while the students strove to do credit to their alma mater. The published lists, in many instances, have been silent comments on the weakness or strength of the faculties of the colleges, or the unpreparedness of the graduates for professional life. The lists have been a goad to both good and bad colleges without being a curse to either. They have caused many a titter when colleges supposed to be good failed to get their students passed; at the same time the pain, secretly felt, was bracing in the highest degree.

Why should not this plan be followed by the secretaries of the State Veterinary Examining Boards? The medium for pub-

lication should be the AMERICAN VETERINARY REVIEW. The lists published should embrace the number from each college who passed each board in a given period of time. The list could appear in tabulated form something after the fashion of the list of meetings of veterinary associations in the country, or the tabulation of the main points in each state license law which occasionally appears in the AMERICAN VETERINARY REVIEW. Each secretary should be asked to furnish the number who passed and the number who failed from each college at the license examinations. The alphabetical arrangement by states and colleges would be best. The list should be truthful and complete as far as may be. The custom would soon become a fixed one. Secretaries would soon find it a moral obligation to furnish the data and it would be their bounden duty to do so. The list would be of great interest. Examining boards of all states, college faculties, all students who tried the examinations, and all who propose to try them in the future would be interested in the lists. The older graduates of all the colleges, older practitioners, hardened by the rough and tumble of their every-day work; professional men of all sorts, case-hardened by experience, would have an eye on the lists, knowing that they would be a gauge of the strength or weakness of the colleges. They would lend their interest, not to those that make-believe, but to those which turn out satisfactory workers in the professional field as shown by the facts.

D. ARTHUR HUGHES, Litt.M., Ph.D., D.V.M.

CORSICANA, TEXAS.

Editors AMERICAN VETERINARY REVIEW:

The last legislature of Texas passed a law regulating the practice of veterinary surgery and dentistry and creating a board of examiners. The members of the board are T. W. Watson, president; F. G. Cook, secretary-treasurer; J. E. Wilkins, W. A. Knight, S. J. Swift, C. C. Parker and one yet to be appointed.

The board completed its first examinations recently in Dallas, when sixty-six graduates took the examination. Result not yet known, as the papers have not been graded. I enclose copy of act. I have received scores of very interesting communications since I assumed the duties of president of the board and enclose

one that I thought might interest you and some readers of the REVIEW.

We think the law, although not all we would desire, a very good one; in fact we are very proud of it. I am,

Very truly yours,

T. W. WATSON.

* * * * *

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————, TEXAS, July 8, 1911.

Dr. T. W. WATSON, Corsicana, Texas:

Dear Sur not being personal aquanted will you but i am fixen to lay my case before you and Deal onest with you as when i started out to practic 17 years a go i started with Dr. —— a veterinary surgeon and denest of 31 years Experience being successful in practic i later took a corse thrue the male the Canady School in vet Science i cecured my bookes in the bank and rite for my examand nation they sent them i made a good grad and the sent me a Diploma. the 23 day of may in the year of our lord 1905.

T. H. HASKETT, Dr D. Sicy.
J. E. HODGINS V S V D. President.

later i tuck a nother corse from Dallas school an veterinary surgury and Dental got my Diploma June 6—a d—1908. Dr. Frank E Rutherford v s president Dr Roy w Rutherford vice pres R D Rutherford sec tras C E Baxter W S Barter

i allso tuck a coarse from the Detroit Vet Dental Coledge an special Dental work got diploma deposeted my bookes with philips the banker here at aubrey till the Examanation was made got Diploma and futhermore hav studyed Johnson and baker bookes who is the Dean of the Chicago vet colledge and take the liture all the time and keep posted up i hav bin wher i am 8 years

i hav bin successfull hav made friends all the while hav made all the operations a surgeon can me this year i hav cast 16 rignal All well i go for 2 hundard miles and treet sick animals all that is a ganst me is i never gragated in a up to dated vet school the peaple all think i am a first classed vet surgeon and denest i dont no of eney thur gragate in Denton Co i all so tuck Pro. berryes corce i hav a fine practic and hav 2 boyes i ame to send to a good vet coledge i send you some of my circlers if it is so i can get licens i want to be a up to date man as i over the perfeshion can i send in the fee of $5.00 and cescure one plese let me no as soon as you can an every so much oblige i hav $300 worth of inst ments and a big Practic mickin lots of money.

"Youres very truley,

"_____ _____."

"P. S.—A word i can get 500 men of fine standard to sine eney Recomendation i should want an vet and surgery the non gragates here think i am a thur gragate an all the people do dont ame to let them no eney better if i can get licens i will a preshate them. now Doctor i hav a rite to practic under the law in this county but i want to not be bared. So if you plese do the best you can for me regardles of price you find stamp to ples dond take no Exceptions. Truly youres."

THE COLORADO STATE BOARD OF VETERINARY MEDICAL EXAMINERS will hold an examination for graduates of recognized colleges, at the State Capitol, January 5-6, 1912. Particulars may be obtained by addressing Dr. Wm. W. Yard, secretary, Denver, Colorado.

IMPORTANT NOTICE—ALPHA PSI FRATERNITY.—"All members of the Alpha Psi Fraternity, either honorary or graduate, who have made a change of address within the past year, as well as all graduate members for the year 1911, should forward their present address, with the line of veterinary work they are now pursuing, to the undersigned, secretary of the National Council, for publication in the *Alpha Psi Directory*, which goes to press January 1, 1912."

H. PRESTON HOSKINS, Secretary,
University Farm, St. Anthony Park,
St. Paul, Minn.

SOCIETY MEETINGS

MISSOURI VALLEY VETERINARY ASSOCIATION.

The annual meeting was held at Omaha, July 10, 11 and 12, 1911.

Meeting called to order 1.55 p. m. by President Kaupp. Minutes as published in the AMERICAN VETERINARY REVIEW were accepted as published. President Kaupp then presented his address.

PRESIDENT KAUPP'S ADDRESS.

It is customary for the president to deliver an annual address at the termination of his tenure of office as president of the association. It is my opinion that this address should be delivered at the beginning of his tenure of office so that he could outline his policy for the ensuing year. To make this possible it would be necessary to so amend the constitution and by-laws that the officers be elected at the semi-annual meeting which would give the president six months in which to prepare his address. This would mean that he would be elected one year before he would preside instead of six months, as at the present time.

A brief review of the history of the association as well as the advancement made by veterinary science in the Middle West may be in order at this time.

The Missouri Valley Veterinary Association was organized in 1894. Its members at first consisted of a few veterinarians living in central western Missouri and eastern Kansas. According to the constitution and by-laws adopted at that time the association meetings were held quarterly. First in Kansas City, then in Leavenworth, and later, when the association fell largely into the hands of the United States meat inspection force of Kansas City, the veterinarians of St. Joseph were interested in the association and an occasional meeting was held in that city.

In the early days of the association the value of horses was 25 per cent. to 50 per cent. less than at the present time. The country was struggling from the effects of the panic of 1893. The

laymen looked at the veterinarian as one who could treat the ills of horses but knew little about diseases of cattle, dogs or other animals. With the improvement and increase in all kinds of live stock, and with the education of the laymen to the understanding of the advantage of employing men to treat their sick or injured animals, there has been given an impetus to veterinary education and the profession in the territory embraced by this association. Where twenty years ago scarcely one hundred veterinarians were located, now more than one thousand are making a livelihood. This association has had the support of these gradual increasing numbers and has prospered thereby. In 1903 it was decided to enlarge the scope of usefulness of the association, and accordingly a meeting was called for Omaha. The officers of the association were pleased with the attendance and so called a meeting annually for this city. In the following year the constitution and by-laws were revised so that now our meetings are and have for a number of years been held semi-annually. The following year the Iowa-Nebraska association was absorbed by the Missouri Valley Veterinary Association. The *Iowa-Nebraska Veterinary Bulletin* was also taken over and its name changed to that of the *Missouri Valley Veterinary Bulletin.*

This association should continue to grow and should be a power and assistance in veterinary sanitary measures worked for in the various state legislatures in its territory.

As to the advancement of comparative medicine, we can but be astounded when we consider that the first pathogenic germ was discovered about the year 1850, or about sixty years ago. That the microscope is of rather recent invention. That the germ theory has only been proven within the memory of all present, it is indeed wonderful, the progress that has been made in solving the hidden mysteries so important to those interested in veterinary science.

The fact that tuberculosis is due to the bacterium tuberculosis, was only made known by the discovery of that organism by Koch in 1882, and even after this was proven by special staining methods and animal inoculations, there were yet skeptics (not scientists) who preached that tuberculosis was not due to a germ. The disease was at first recognized by its clinical signs and post-mortem findings. Later, when it was proven to be due to this germ and the identity of the germ established, inoculations with laboratory animals as the Guinea pig added a new

hope to the correctness of diagnosis in cases considered doubtful. With the discovery of the chemic substances given off from the germs and the utilization of same under the name of tuberculin, new hopes as to a means of detection of the disease in animals which did not as yet show physical signs was found. This opened a new field and the anaphylactic reaction was made use of as a diagnostic agent; and later in other diseases with a like toxin, as in glanders. This phase has progressed until at the present time there are no less than five methods whereby we are assisted in making our diagnosis and proving the presence of tuberculosis and six means of arriving at a diagnosis in glanders. The diagnostic methods in brief in tuberculosis are: 1st, physical signs with autopsy; 2d, the subcutaneous test now in general use in detecting the disease in cattle and promises to be of, perhaps, equal value in the testing of hogs; 3d, the ophthalmic test used in some countries and particularly in the Argentine Republic; 4th, the cutaneous test used in the human; 5th, the recent intradermal test. Whether or not this latter method will supplant the subcutaneous tuberculin test remains to be seen.

Wonderful strides have been made in the diagnosis and eradication of glanders among horses. The discovery of the bacterium mallei and the proving of this organism as the causative agent proved the positive contagiousness of this disease. With the development as in tuberculosis we have no less than six methods unfolded to us as time has gone on. First came the diagnosis by clinical signs and autopsy, including microscopic study of lesions secured at autopsy. Second, came the discovery of the anaphylactic reaction following the introduction into the body of mallein. Third, the inoculation into the male Guinea pig and the production of orchitis with chancroid lesion. Fourth, the agglutination method following the discovery of the formation of a chemical substance in the blood called agglutinogen, the formation of which is stimulated by the presence of another chemic substance called agglutinin and contained within the germ. When agglutinin of the germs unites with the agglutinogen of the serum, clumping occurs (Widal reaction). Fifth, with the discovery of precipitinogen formation in the blood which substance was stimulated by precipitin contained in the products of the germ, there was another field of diagnosis opened. Konew was the first one to give a practical method of this knowledge. About this time we have unfolded to us the Wasserman reaction or, more properly speaking, the fixation of the complement in the diagnosis of glanders.

The discovery of the body defenses have not only been made use of as a means of diagnosis, but also as a means of bringing the body up to that state in which recovery must ensue.

The discovery of the antibodies, a serum solution of which we call, for convenience, antitoxin, gives us a therapeutic agent which enables us to preserve or save the lives of hundreds of thousands of animals which represent millions of dollars.

The recent discovery of the defensive chemic substance called by Wright and Douglas opsonin, which substance prepares the pus-producing germs or sensitizes them so that the phagocytes can destroy larger numbers and thus hasten recovery, has opened up a new field in vaccine therapy.

It is only in recent years that the full significance of parasitism has been fully comprehended. It has been proven that many parasites, especially worms, give off poisonous chemic substances. Thus the fluid from the cysts of the larval stage of certain parasites are poisonous and even result fatally when injected into the body of an experimental animal. Uncinariosis, or hook-worm disease, as well as other forms of intestinal parasites especially belonging to the strongile family, not only cause constitutional disturbance by robbing the host of blood or nutrients but also by the chemic substances or poison given off from their bodies. These toxic products cause eosinophilia, in some conditions cause cloudy swelling and focal necrosis and death. The latter is well illustrated in the protozoon disease of turkeys called entero-hepatitis.

With improved methods in the laboratory, greater work is being done. Thus by the examination of the feces (in intestinal parasitism), both macroscopically and microscopically, correct and proper diagnosis and hence medication can be given.

The facts revealed by blood study is of inestimable value from the practical standpoint. So that the working out of practical laboratory methods has made necessary the adding of this important line of work to our college curriculum and development thus goes on. The man in the field, to be of most practical value to his patrons, must do some of this laboratory diagnosis work and hence provide himself with some equipment. The future man to succeed must do this.

Great strides have been made along other lines and must not be lost sight of in this hurried and brief review. Surgery has made wonderful progress, operations are successfully performed at the present time, many of which were not even thought of

fifty years ago, and others would have surely proven fatal to the patient. At the present day every well equipped hospital has an operating table, which is considered as essential a part of the equipment as casting harness, stocks, or slings. Was it so thirty years ago?

We have also made great strides in the lines of diagnosis and therapeutics. Recently an intra-tracheal spray has been successfully used and advocated by Dr. Levi. This instrument is provided with a trocar which is inserted between two tracheal rings after first making a skin incision. From 1/10 to 1/20 the dose per orum is given. Best results are claimed by administering oily solutions; next comes glycerinated, then alcoholic, and last, aqueous. The doctor recommends this form of medication strongly in diseases of the larynx, trachea, bronchi or lungs. It certainly deserves attention by our American veterinarians.

Another point worthy of mention recently brought out. Since recovery from disease is dependent on the rapidity of elimination of poison (toxin) which produce the cellular disturbance most dangerous to the parenchymatous or vital organs, it has been recommended to give quantities of physiological salt solution, which would have a tendency to flood or wash out more thoroughly the tissues, and certain to result in elimination of larger quantities of fluid from the body; hence it is argued would more quickly rid the body of offending chemic substances toxic to it. Among those diseases on which it is recommended are those of an infectious nature; and also pneumonia and purpura hemorrhagica. In this latter disease, the writer can testify to its being of great value, as one seldom dies with the use of physiological salt solution.

More is being learned about toxicology and toxic substances in plants. It would be worth the while for all veterinarians living in the Missouri Valley to secure from the State Board of Horticulture of Missouri the bulletin recently issued and written by L. H. Pammel. Among some of the interesting things noted are items in regard to toadstools, of which there are many varieties. The Fly Agaric is from three to five inches across, at first globose, later dumb-bell shaped. The top is covered with flocculent scales. The young plant, at first reddish later becomes orange and finally a yellowish. The stem is white or yellowish-white, pithy and hollow. This plant pields a poison, muscarin. The fungus is called *Amanita muscaria.* Another

variety is the *Amanita phaloides*. This fungus has a smooth, viscid pileus. It is usually white in color, occasionally assuming a brownish color. This fungus yields a deadly poison called phallin, which has different action than the classical muscarin. It is powerfully hemolytic for erythrocytes of the Guinea pig, fowl, pigeon, dog, goat and man. It is possible to immunize an animal by repeated small doses. Milk, either raw or cooked, is said to be an antidote?

Many varieties of poisonous ferns are found in the Missouri Valley. When ingested in large quantities they cause enteritis, spasms and paralysis. Many varieties of horse tail or equiseta are found. They may be incorporated in the hay and in large quantities produce paralysis of hindquarters, spasms and death. Warning is also given in regards to the much discussed Johnson grass and sorghum. The latter, especially when young and frosted following drought, etc. The offending substance is hydrocyanic acid contained in a glucocide known as dhurrin. Corn cockle, and particularly the seed, contains an active principle called saponin, which is poisonous. This substance is not only poisonous for animals but also for fowls. Among the symptoms noted are vertigo, nausea, tenesmus, diarrhœa and impaired locomotion. The aconite, larkspur, crow's foot are also well-known poisonous plants common in this region. The seeds of apples, peaches, pears, plums and cherries all contain a glucocide called amygdalin, which in the presence of the proper ferment is readily converted into hydrocyanic acid. The leaves and bark of the wild cherry are poisonous to cattle. Horses by gnawing and ingesting quantities of locust bark have become poisoned. The symptoms are as follows: stupor, defective vision, incoordination of movements, etc. Rattle-box, or crotolaria sagittalis, is common and contains an active principle producing crotalism. This plant possesses a small, yellow, pea-like flower and an inflated pod. The young sprouts of buckeye along the river bottoms early in the springtime has caused great loss among cattle grazed on these fields before the grass was of sufficient growth. Not to be lost sight of, is the young cockle-burr, which when eaten by hogs results in death. There has recently been reported fatal poisoning in hogs eating the plants and roots of the cockle-burr, where the plant has just began to grow. So the work of investigation goes on.

Following the president's address the reports of secretary and treasurer, the Committee in Infectious Diseases, the Committee

on Surgery and the Committee on Food and Milk Inspection were presented. There has been a retrogression along the lines of inforcement of state laws in a number of states. Kansas City has directed that unpasteurized milk entering the city must be chilled to 50° F.; this adds materially to the food value and lessens the laboratory work of the inspection force. Committee on Certificate of Membership reported unfavorable. Instead it was recommended that a card be issued annually to those paid in advance. Motion carried.

It was recommended that in those states having stallion inspection, two outlines of a horse should be on each certificate where markings and unsoundnesses could be drawn. Photos to accompany questionable cases; same to be filed, making a permanent record; and that the fee for examinations be fixed at $5 for each horse.

Resolution read regarding uniform degrees; amended, carried.

Dr. F. J. Trafton's report of a case read and discussed. Dr. S. H. Johnson reported a very similar case.

The following report of the Committee on Therapeutics was read by Dr. Bourne, and quite freely discussed:

REPORT OF COMMITTEE ON THERAPEUTICS.

Your Committee on Therapeutics for the year 1910 and 1911 have been at work making an effort to gather together material which has proven itself valuable in the hands of the veterinary practitioners of the United States and elsewhere. Your committee is unable to make a report altogether from personal observations, but where these materials from outside sources are submitted, it will be so stated.

Excellent results have been reported in the treatment of various skin diseases such as eczema, pruritis, etc., with epicarin. Epicarin is a basic, non-toxic, condensation product of cresotinic acid and betanapthol. It occurs as a reddish yellow powder, odorless and tasteless, soluble in alcohol, ether and acetone, yielding from light to dark brown solutions according to concentration. It is miscible with petrolatum and lanolin. In the clinic at the Kansas City Veterinary College, the alcoholic solution is preferred, 5 per cent. to 10 per cent. being the strength usually employed. It is a valuable antiseptic, antipruritic and parasiticide, and deserves a more extensive use.

In the *Journal of the American Medical Association* of November 5, 1910, occurs an article on the comparative efficiency of some common germicides, by Drs. Post and Nicoll, wherein some exceedingly interesting facts are laid bare. Thus the relative value of the following silver preparations were ascertained, viz., argyrol, protargol, and silver nitrate.

Silver nitrate was found to be the most efficient germicide in this class, and even in solutions of 1 to 5000 it was found superior to either one of the others. It should be remembered, however, there silver nitrate coagulates albumen and precipitates chlorides which is not the case with argyrol and protargol. Of the mercurials it was found that the germicidal discs of Parke, Davis & Co., composed of biniodide of mercury, 1 part; potasium iodide, 1 part; sodium bicarbonate, 20 parts, dissolved in 1000 parts of water where apparently the most efficacious of any of the mercurials known, thus it was found that a 1 to 5000 was as efficacious as a 1 to 1000 mercurial chloride solution. It also has the advantage that it does not coagulate albumen and hence permits of a greater penetration than other mercurials. It causes less irritation and does not corrode instruments.

In the phenol group, tri-cresol, as well as kreso, in 1 per cent. solutions, destroys all ordinary organisms in less than one minute. Creolin is less effective, lysol still less and phenol least of all. A 5 per cent. solution of phenol, however, kills all ordinary organisms in about one minute.

Iodine solutions are remarkably effective, thus it was found that a solution composed of 1 part of iodine and 1 part of potassium iodide, 100 parts of water, destroys the streptococcus, pneumococcus and the bacillus typhosus in less than one minute. The writer has found tincture of iodine diluted with an equal volume of water to be the most dependable disinfectant for general use in all kinds of septic wounds. My usual method is to moisten a piece of gauze with this mixture and pack the infected wound with it. We have all placed more or less dependence on formaldehyde, but according to Drs. Post and Nicoll, who were conducting a test at the Rush Medical College, it is certainly not very dependable. In 1 per cent. solutions it requires from 30 minutes to one hour to destroy the streptococci, pneumococci and the bacillus typhosus and in the ordinary strength of 1 to 1000, it required several hours.

A 50 per cent. solution of alcohol is a thoroughly dependable disinfectant, and is especially convenient for skin disinfecting.

Tincture of green soap, according to the pharmacopœia, is composed of 650 grammes of sapo mollis, 20 c. c. oil of lavender alcohol sufficient to make 1000 c. c. This preparation destroys all ordinary germ life in less than two minutes. This has been verified by repeated experiments. For use in the hospital it may be kept in an ordinary bottle, with a squirt top, and will take he place of soap as well as that of a disinfectant. This preparation, of course, is primarily intended for skin disinfection, but may also be used on wounds. In this somewhat brief report, a few important facts may be gathered, namely: that disinfectants have evidently a selective action on certain micro-organisms, and that a disinfectant that is efficient in destroying one organism may be useless for destroying others. I shall aim to present to this association the report of my own labors in the choice of disinfectants in the near future.

Dionin—ethylmorphine hydrochloride occurs as a white, crystalline powder, having a faintly bitter taste, and is soluble in seven parts of water or 17 parts of alcohol. Dr. Hugh Miller, professor of ophthalmology at the Kansas City Veterinary College, is recommending a trial of this agent in the treatment of periodic ophthalmia, using it in 5 to 10 per cent. solutions, of which a few drops are to be instilled into the eye three times a day. This agent causes dilatation of the lymph spaces of the cornea and thus drains the intraocular contents, thereby relieving the intraocular tension. A severe œdema of the conjunctiva and lids of the eye does occur following its use, but this should not cause any alarm as it disappears in a short time after its use is discontinued, in fact this swelling is essential and will subside with benefit and not harm to the eye. He also states that it is a valuable antispasmodic and analgesic, not producing constipation nor nausea, hence this agent may be used in intestinal disorders where a non-constipating anodyne would be useful.

A great many practitioners with whom I have been speaking recently are very enthusiastic over the very rapid and beneficial results they receive from the use of the following treatment in acute laminitis, namely:

The administration of a capsule containing from three to four drams of acetanilid and injecting over the digital vessels ten to fifteen minims of adrenalin chloride solution. It should be remembered that acetanilid, like aconite, powerfully lowers blood pressure, increases heat radiation and is far superior to aconite as an agent to allay pain. The injection of the adrenalin

over the digital vessels diminishes the amount of blood in the parts involved and it is reported that it is nothing usual for a patient suffering from laminitis to be far on the way to recovery in a few hours. The usual additional treatment of evacuating the bowels and stimulating the secretions, of course, should not be overlooked.

Antitetanic serum came in for a good deal of discussion, both pro and con. Strychnine was reported as being given as a last resort and was thought to have helped the condition; animal being put in slings. The proposition of formaldehyde gas vaporized in tight quarters as not being good was questioned by S. Stewart. Different disinfecting agents for different purposes were recommended by A. T. Kinsley.

The question of the similarity between *infectious anemia* and so-called *bottom disease* as found along the Missouri River bottoms was discussed; the opinion seemed to be general that they are different conditions. Bottom disease is caused by the so-called " rattle weed " or *crotalasia.*

SECOND DAY.

Met at hotel and went in body to Council Bluffs, to Miller and Son's hospital, to see a case of dourine in a stallion, which had been shipped from Taylor County. Short talks were given by Dr. A. T. Kinsley and Dr. J. I. Gibson, State Veterinarian of Iowa, about dourine. This outbreak in Taylor County, Iowa, is somewhat different from those described in the text books; there being very little, if any, depigmentation in affected animals. A number have been killed and over 200 head are now in quarantine. The association is under obligations to Drs. J. I. Gibson, A. H. Quinn, Wm. Readhead and D. H. and G. G. Miller for this opportunity of seeing a case of dourine, the first time a case has been presented as clinic material, at any association meeting.

The fast Council Bluffs fire team was shown to the members while at " Miller's Hospital," and were very much admired by all; this team are the holders of the world's record for straight-away half-mile, hitched to fire apparatus.

Dr. C. L. Wilhite not being present, his paper, " Pervious Urachus," was read by the secretary and a great deal of discussion resulted. V. Schaefer uses dilute H_2O_2 and then boric acid solution. L. U. Shipley uses styptic collodion, A. T. Kinsley, tincture ferri chloride. J. A. De Cow, thinks the

condition partially due to constipation, and recommends oil and injections with pressure on urethra. G. M. Waalrod suggests H_2O_2, tincture ferri chloride and tincture iodine. A. F. Baldwin used a human catheter and a syringe to aspirate pus from the urethra, afterwards flushing. A. J. Treman opens freely, curets, applies styptics and biniodide blister. S. H. Johnson presses cord, flushes thoroughly with a weak plumbi acetate solution large amount; this passing to the bladder is thrown out with the urine. C. E. Stewart opens freely, cutting cord short, lets it bleed a few minutes, then puts ½ dram of potassium permanganate on oakum and holds on the open wound until it heats.

Dr. R. F. Bourne gave "Some notes on the Reproductive Processes in Animals," which brought out the latest thought along this line, and in relation thereto, a number of unusual cases of animals having one small dead fœtus or calf and a full grown live one at the same time. Dr. Cline reported a case and wished a diagnosis. Stomatitis, removed cap of tooth and used boric acid solutions and later dilute tincture iodine. Temperature 104, pulse and respirations about normal, infection spread to outside lips. Antistreptococci serum brought temperature down to normal, but later rose and fell. Hind limbs swelled, cracked open at joints, nasal discharge, swelling spread over head and up legs; finally temperature 98, pulse very weak; down twelve hours before death.

Dr. E. L. Quitman in discussing Dr. Cline's case, suggested "mycotic lymphangitis," which he believes is an old disease, and that a great many cases of which were mistaken for farcy and killed. Suggested as treatment, arsenic 2 or 3 grains, copper sulphate 1 dram; dilute with stomachics two or three times daily.

The question of uniform certificates for inter-state shipment was brought up and a committee composed of A. T. Kinsley, J. I. Gibson, A. Bostrom, C. E. Stewart and P. Juckness was appointed to draft resolutions to be presented to the National Live Stock Sanitary Board, when next in session. J. I. Gibson was given the resolution and is to present it at the next meeting.

RESOLUTIONS.

Whereas, By a ruling of the United States Department of Agriculture all veterinary courses at the various veterinary colleges are similar and

Whereas, There are many different degrees, all purporting to show similar educational attainment, and

Whereas, This matter of deciding on a uniform degree will be brought up for consideration at the meetings of the Association of College Faculties and Examining Boards of North America, and the American Veterinary Medical Association (August 22-25, 1911), therefore be it

Resolved, That we, the Missouri Valley Veterinary Association assembled, representing the profession in the middle west, recommend to these associations the adoption of the degree Doctor of Veterinary Medicine, same to be abbreviated (D.V. M.).

Be It Further Resolved, That this association recommends that all colleges confer upon their graduates, who so desire, the newly adopted degree.

Election of officers resulted as follows: C. E. Stewart, of Chariton, Iowa, president; R. F. Bourne, Kansas City, Mo., first vice-president; J. A. De Cow, Holdredge, Neb., second vice-president; Hal C. Simpson, Denison, Iowa, secretary and treasurer.

Members of Executive Committee for ensuing year: Frank Jellen, Nebraska; D. O. Knisely, Kansas; A. J. Treman, Iowa; S. Stewart, Missouri, and B. F. Kaupp, Colorado. All of the officers were elected by acclamation.

V. J. Robinson reported a case of "Gangrene," This brought out considerable discussion and various ideas of treatment. The use of eserine for quick action of the bowels, extensive surgery and followed with hot water irrigations continued for at least half an hour at a time; afterwards free use of peroxide.

Prof. E. L. Quitman, of the Chicago Veterinary College, talked nearly two hours on "General Remarks on Veterinary Materia Medica and Therapeutics." This was one of the treats of the meeting and was listened to with much interest. It is unfortunate that an address of this kind was not taken down by a stenographer and later printed, where it could be read at leisure. A standing vote of thanks was tendered Dr. Quitman.

Dr. A. J. Treman reported a case of "Eversion of the Uterus." The discussion, as usual, showed there were many men of many minds. The advantages and disadvantages of suturing in these conditions, each had many adherents. Chloroform anesthesia, morphine and chloral hydrate were each highly lauded. A 1 to 2000 adrenalin chloride solution, a small amount injected into a number of places helps a great deal. Flushing with weak

antiseptic solutions seemed to be favored by a number; also rear elevation.

The following resolution was also passed: "Resolved, That any member of this association found guilty of issuing a certificate of health for animals not based on the legal requirements for such certificate in his state, shall be guilty of violation of the code of ethics and subject to expulsion from membership."

On calling the meeting to order the third day, the president was authorized to appoint three delegates to the A. V. M. A. meeting and three to the U. S. S. A..

To A. V. M. A.—A. T. Kinsley, S. H. Quinn and B. F. Kaupp.

To U. S. S. A.—S. H. Bauman, D. F. Luckey and Harry Morris.

The following named gentlemen were elected to membership: H. W. Marsh, Pawhuska, Okla.; Wm. Readhead, Lennox, Iowa; L. M. Walker, Decatur, Neb.; Frank C. McCurdy, St. Joe, Mo.; C. J. Norden, Nebraska City, Neb.; W. H. Spencer, Yates Center, Kans.; W. E. Norden, Shelby, Iowa; G. G. Miller, Council Bluffs, Iowa; Charles Parke, Moville, Iowa; E. G. Piper, Ida Grove, Iowa; George M. Walrod, Storm Lake, Iowa; B. F. Ward, Anthon, Iowa; H. R. Neihaus, McClelland, Iowa; G. Ed. Leech, Winona, Minn.; Wm. G. Keehn, Norfolk, Neb.; A. D. Glover, LaBelle, Mo.; J. W. Griffith, Cedar Rapids, Iowa; E. A. Shikles, Dearborn, Mo.; J. E. Ingmand, Red Oak, Iowa; Joseph Hughes, Chicago, Ill.; C. E. Hunt, Mt. Pleasant, Iowa; N. J. Deiling, Dallas Center, Iowa; S. E. Cosford, Rapid City, South Dakota, and A. Bostrom, Lincoln, Neb.

A large number were in attendance from nearly every state in our territory. The semi-annual meeting will he held at Kansas City, during the winter.

REPORT OF THE COMMITTEE ON NECROLOGY.

Whereas, The hand of disease has removed from us an active, progressive and honored member, Dr. R. R. Hammond, of Cherokee, Iowa, on April 26, 1911, be it

Resolved, That this association mourns the untimely death of an esteemed member, and directs the secretary to record this preamble and resolution in the minutes of the meeting and that a copy be sent to his family.

Whereas, Through being thrown from an automobile on July 4, 1911, Dr. Hiram A. Reagor, of Beaver City, Neb., was instantly killed, be it

Resolved, That this association is shocked by his sudden and accidental death, and expresses its sympathy to his young wife and his relatives, and be it further

Resolved, That a permanent record be made of this resolution and a copy be sent to his widow.

S. STEWART,
V. SCHAFFER, Committee on Necrology.

HAL. C. SIMPSON, Secretary-Treasurer.

REVISED VETERINARY ASSOCIATION OF KENTUCKY.

The Kentucky Veterinary Medical Association held its first meeting at Louisville, Kentucky, October 7, 1911, after a dormancy of three years, with headquarters at the Galt House; Dr. A. D. Piatt, former secretary, having moved from the state left no successor to take on his duties. The veterinarians of the state, realizing the good derived from such meetings, made it necessary for the State Veterinarian, Dr. F. T. Eisenman, to appoint an acting secretary. Dr. E. Norton Tierney, of Shelbyville, was selected to take up the work of Dr. Piatt, and notify the old members of the coming meeting, as well as inviting all eligible candidates in the state to the association. This he did in a creditable manner, and notwithstanding the attraction of the famous "Lexington Trots," on the morning of October 7, 1911, the veterinarians from all over the state began to assemble.

At nine o'clock sharp, Dr. F. T. Eisenman called the meeting to order, and outlined the business to be taken up by the association, as follows:

1. Election of officers. 2. Report of committee on legislation. 3. Revision of constitution. 4. Revision of by-laws. 5. Consideration of applications.

The following officers were elected for the ensuing year:

Dr. F. T. Eisenman, Louisville, Ky., President.

Dr. S. F. Musselman, Cynthiana, Ky., First Vice-President.

Dr. J. W. Jameson, Paris, Ky., Second Vice-President.

Dr. Robert Graham, Lexington, Ky., Secretary and Treasurer.

A committee appointed on the "*Act to Regulate the Practice of Veterinary Medicine, Surgery and Dentistry in the State of*

KENTUCKY VETERINARY MEDICAL ASSOCIATION, OCTOBER 7, 1911, LOUISVILLE, KENTUCKY.

Drs. Black, Bueter, Pontius, Musselman, Calldemeier, Redie, Barnes, Robinson, Eisenman, Crissler, Casey, Teirney and others.

Kentucky, to Establish a State Board of Veterinary Medical Examiners, and to Punish Persons Violating the Provisions Thereof," composed of Drs. Musselman, Casey, Riede, Barnes, Breeck, and Bueter, was then submitted, being read by Dr. C. Calldemeier, which was approved by the association. After being approved, it was decided to supply two copies or as many as was needed by the members of the association to interest the members of the legislature of their respective districts.

The Committee on Constitution and By-Laws, consisting of Drs. Miller, Black, Crissler, Stamper, Robinson, Smock and Ditto then made their report as read by Dr. E. Norton Tierney, followed by a motion that every member of the Kentucky Veterinary Medical Association should be supplied with a copy as read.

The following applications, accompanied by fees, were then placed before the meeting, thirty-two in number:

H. C. Black, Walton; T. L. Breeck, Carrolton; E. Calldemeier, 2121 W. Broadway, Louisville; Robert F. Fisher, Paducah; Robert Graham, Experiment Station, Lexington; H. H. Hobbs, Kevil; C. F. Hobbs, Lebanon; R. P. Moody, Maysville; Geo. W. Pedigo, Glasgow; Frank H. Riester, 513 E. Market St., Louisville; Wm. F. Reide, 565 Garden St., Louisville; C. W. Southerland, Mayfield; F. E. Tibbols, Somerset; Jas. A. Wallace, Bowling Green; O. S. Cresler, Burlington; W. B. Robinson, Mt. Sterling; E. Norton Tierney, Shelbyville; Jas. Campbell, Henderson; John J. Gough, Benton; R. L. Pontius, Lancaster; David M. Stamper, Ewing; J. K. Ditto, Pleasureville; R. B. Smoot, Madisonville; Allan S. Barnes, Dayton; Maurice E. Jones, Campbellsville; F. A. Simpson, Milfurn; C. A. Miller, Louisville; I. M. Hendrich, Owensboro; John E. Gray, Bowling Green; John T. Chawk, 713-715 Seventh St., Louisville; E. C. Reaves, Glasgow; and John C. Meyer, 21 E. Pike St., Covington.

Twenty-four of these were passed upon by the association before adjournment for lunch at 2 p. m. The remainder will be taken up at the next meeting.

In the afternoon, at the Churchill Downs, the "Four-Mile Endurance Race," the biggest race of the year, was attended and enjoyed by all. It, however, was noted that none of the members were obliged to call for the assistance of a taxi to carry them and their winnings back to the hotel.

At 7 o'clock the banquet was spread in the private dining room of the Galt House, with Dr. F. T. Eisenman presiding. No formal program was in order. The toastmaster called here

and there on those seated about the board as the spirit moved him. Later in the evening the talk drifted into a general discussion of subjects pertinent to the profession, the following being of especial interest: (1) "Tuberculosis and the Tuberculin Test," by Drs. F. T. Eisenman and W. E. A. Wyman. (2) "Infectious Abortion," by Drs. Purdy, Casey, Wyman and Eiseman. (3) "Glanders and Reliability of the Mallein Test," by Dr. S. F. Musselman, whose experience in the Philippines with glanders made it especially interesting and instructive. (4) "Fistulous Withers, Bacterine Treatment," by Drs. Casey and Robinson. (5) "Hog Cholera and Its Serum Preventive Treatment," by Drs. Graham, Wyman, Casey and Deets.

These subjects were freely discussed by all the members in an informal way, and much good was derived from the talk about the table.

The meeting was adjourned at a very late hour, all voting the time well spent and the meeting a decided success, vowing with a final toast to work for a greater state association, with the assurance of their presence at the next meeting.

ROBERT GRAHAM, Secretary and Treasurer.

MAINE VETERINARY MEDICAL ASSOCIATION.

The quarterly meeting of this association was held in the Alderman's room, City Hall, Waterville, October 12, 1911. The meeting was called to order by President Wescott. Members present answering roll call were: Drs. A. Joly, I. L. Salley, A. L. Murch, C. F. Wescott, W. S. Lord, C. H. McGillicuddy, H. L. Stevens, E. E. Russell, C. W. Watson, W. H. Lynch, H. B. Ferris and B. L. Pratt. The minutes of the July meeting were read and approved.

It was resolved that this association should record its feeling of grief at the loss of our member and associate, the late Dr. F. E. Freeman, and that these resolutions be spread upon the records of this association. A committee of three was chosen to draw up the resolutions.

RESOLUTIONS.

Whereas, The Divine Master has called from us Dr. F. E. Freeman, an active and highly esteemed member of this association,

Resolved, That we are profundly impressed with a deep sense of bereavement at the loss of our friend and associate, and hereby tender to the members of his stricken family our heartfelt sympathy in their great affliction.

Resolved, That these resolutions be spread upon the records of this association, that a copy be presented to his family, and that they be published in the AMERICAN VETERINARY REVIEW.

Signed by

COMMITTEE.

A certificate, which was signed by the president and executive committee, was issued to one new member, Dr. B. L. Pratt.

The president, Dr. Wescott, was present at the meeting of the American Veterinary Medical Association, held in Toronto, Canada, August, 1911. Dr. Wescott gave us a general idea of the meeting, touching on each of its branches.

A vote of thanks was extended to Dr. Wescott for this report.

Dr. Joly gave us a very interesting report on a carload of horses that he had just mallein-tested. This was an able paper and was followed by a long discussion; the general idea of all, being that these horses should have a physical examination as well as the mallein test.

Dr. Salley was appointed on the executive committee, to take the place of the late Dr. F. E. Freeman.

Voted to meet at Portland, West End Hotel, January, 1912.

Meeting adjourned at 12 o'clock midnight.

C. W. WATSON, Secretary.

ANNUAL MEETING OF THE COLORADO STATE VETERINARY MEDICAL ASSOCIATION.

The annual meeting of the Colorado State Veterinary Medical Association will be held in Denver, January 18 and 19, 1912. The program will extend over a period of two days and will consist of a pathological exhibit the forenoon of the first day, which will be in connection with the meat inspection exhibit, provided for the meat inspection class of the Division of Veterinary Science, State College. The afternoon of the first day and the forenoon of the second day will be devoted to business meetings and papers. The afternoon of the second day will be devoted to

a clinic which promises to be very interesting. The annual banquet will be held the evening of the first day.

This meeting, coming the week of the Stock Show in Denver, will add considerable to the attraction and profitable interest.

All veterinarians are urged to attend.

B. F. KAUPP, Secretary.

SOCIETY OF COMPARATIVE MEDICINE, NEW YORK STATE VETERINARY COLLEGE.

On Friday, November 3, 1911, Dr. J. F. Devine gave a short address before the society upon "Suggestions for a Successful Practitioner." He spoke in a very easy and pleasing manner and brought out quite clearly that for the successful practitioner in veterinary medicine persistent application, honesty, and professional dignity are the three most necessary requirements.

The society met for a short business session on Friday, November 10, at which Mr. C. A. Gardner was selected to represent the Veterinary College at the Cornell-Pennsylvania football game at Philadelphia on Thanksgiving Day.

R. RAY BOLTON, Corresponding Secretary.

DR. F. R. COMBER has been appointed assistant state veterinarian in Wisconsin. Dr. Comber is a graduate of the Connecticut Agricultural College and of the Chicago Veterinary College. We extend to him our congratulations.

UNITED STATES LIVE STOCK SANITARY ASSOCIATION—The fifteenth annual meeting of this association will be held at Hotel Sherman, Chicago, December 5 and 6, 1911. The association includes all leading federal and state live stock sanitary officials. It has done good work in securing uniformity in state live stock sanitary laws and quarantine regulations. The 1910 meeting was the best attended and most successful in the history of the association. Already indications point to a larger attendance and better program at this year's meeting. All state veterinarians, members of live stock sanitary boards and officials interested in federal, state or municipal live stock sanitary control work are cordially invited to attend. Particulars can be had of secretary, J. J. Ferguson, Union Stock Yards, Chicago.

NEWS AND ITEMS.

RULES AND REGULATIONS FOR THE IMPORTATION OF CATTLE INTO CONNECTICUT, IN EFFECT ON AND AFTER NOVEMBER 1, 1911.

1. All neat cattle, over six months of age, brought into this state, must be reported by the owner or his agent in writing to the commissioner on domestic animals, State Capitol, Hartford, Conn., within twenty-four hours after their arrival at destination and held in quarantine till, in case they are brought in by a person having a certificate of their healthy condition from the authority having jurisdiction of the diseases of domestic animals in the state from which the cattle are brought, identified and released, or, if not so brought in, until they have been examined by the commissioner or his agent.

2. All neat cattle, over six months of age, brought into this state must be accompanied by a certificate of good health, signed or approved by the authority having jurisdiction of the diseases of domestic animals in the state from which such cattle are brought, or a permit from the commissioner on domestic animals and such certificate or permit, when cattle are shipped, should be attached to the bill of lading of the transportation company.

3. A tuberculin test chart, properly filled out and certified to by a veterinarian in any other state and approved by the authority having jurisdiction of the diseases of domestic animals in that state, will be recognized and accepted as a certificate of health in the meaning of the statute.

4. When neat cattle are brought into this state under certificate of health as described above, the certificate must contain either a description of each animal including age, breed, sex and color or ear tag numbers, so that the cattle can be easily identified by the commissioner or his agent after their arrival in this state.

5. All neat cattle brought into this state accompanied by a permit from the commissioner on domestic animals must be held

in quarantine at the place designated in the permit until they have been examined and released by the commissioner or his agent. Such cattle, if intended for dairy or breeding purposes, will be given a physical examination and the tuberculin test by a veterinarian authorized by the commissioner, at the expense and risk of the owner. Cattle found upon such examination to be diseased will be condemned and destroyed without remuneration to the owner or slaughtered under proper inspection. Any tuberculin test of such cattle while in quarantine, made by any veterinarian or any other person not authorized by the commissioner to make such test, will be interpreted as "plugging" in the meaning of Sec. 6, Chapter 156, Public Acts of 1911.

6. Permits will be given to bring neat cattle into this state for exhibition at agricultural fairs when such cattle are to be taken out of the state immediately after the exhibition, unless the commissioner has reason to believe said cattle are affected with a contagious disease or are in an unhealthy condition.

7. Persons desiring to pasture neat cattle out of the state may furnish the commissioner with a list and description of such cattle including ear tag numbers to be kept on file for the purpose of identification, which will allow them to be returned within six months upon notification to the commissioner when they are returned.

8. Permits will be given to bring neat cattle into the state for a specified time and place for pasture, provided such cattle are marked with tags furnished by the commissioner. At the expiration of the permit the cattle must be taken out of the state or tested with tuberculin.

9. Sec. 6, Public Acts, 1911, provides the following penalty:

Any person who shall intentionally hinder the commissioner on domestic animals, or his agent, in the performance of any examination provided for by this act, or who shall attempt to defeat the objects of the tuberculin test applied to cattle by a previous injection of tuberculin known as "plugging," or shall in any way attempt to prevent an accurate result of such test, shall be fined not more than one hundred dollars, or imprisoned not more than thirty days.

10. All requests for permits or for further information should be addressed to Commissioner on Domestic Animals, Hartford, Conn.

H. O. AVERILL,
Commissioner on Domestic Animals.

A PAGE OF COMPLIMENTS.

DR. ANSON W. BIGGS, of Amarillo, Texas, writes: "Thank you for sending statement as *I don't wish to miss a copy.*"

DR. J. F. THOMSEN, of Gladbrook, Iowa, says: "Enclosed find draft of $3 for 1911 subscription of your journal, *the best in the land.*"

DR. R. L. RHEA, of San Antonio, Texas, writes: "I do not feel as though my month's work is complete without having perused the REVIEW."

DR. F. E. ANDERSON, FINDLAY, Ohio, in renewing his subscription, says: "I appreciate your efforts more each year as this is my twenty-fifth year in practice."

DR. WHIG DUNAWAY, of Dickinson, N. D., in renewing his subscription to the REVIEW, says: "Please renew my subscription to *the best veterinary journal published.*"

DR. A. E. LAMBERT, New Windsor, Md., says: "Whatever you do, *do not let my subscription expire.* I am an old subscriber and will notify you when I do not want it any more."

DR. P. W. MILLER, of Marysville, Ohio., in renewing his subscription, says: "I feel that all practitioners and every second-year student in veterinary medicine should subscribe for the AMERICAN VETERINARY REVIEW."

DR. W. G. GREGORY, of Ft. Worth, Texas, writes: "Enclosed herewith you will find check covering my subscription to the AMERICAN VETERINARY REVIEW. I am more than glad to say that it is worth many times what it costs, and the only way that I will be without it is for you people to stop its print.

THE following from Dr. G. W. Butler, Lafayette, Ind.: "I herewith enclose check for $3 as renewal of my subscription to the REVIEW. I have been taking the REVIEW for twenty-seven years and have every number of each volume during that time. It is an old friend and highly valued instructor that I would not like to give up or part with."

VETERINARY MEDICAL ASSOCIATION MEETINGS.

In the accompanying table the data given is reported by many Secretaries as being of great value to their Associations, and it is to be regretted that some neglect to inform us of the dates and places of their meetings.

Secretaries are earnestly requested to see that their organizations are properly included in the following list :

Name of Organization.	Date of Next Meeting.	Place of Meeting.	Name and Address Secretary
Alumni Ass'n, N. Y.-A. V. C.....	.....	141 W. 54th St.	J. F. Carey, East Orange, N. J.
American V. M. Ass'n.....	Week Aug. 26,'12	Indianapolis..	C. J. Marshall, Philadelphia.
Arkansas Veterinary Ass'n.....	.....	.....	J. B. Arthur, Russellville.
Ass'n Médécale Veterinare Française "Laval".....	1st and 3d Thur. of each month	Lec. Room, Laval Un'y, Mon.	J. P. A. Houde, Montreal.
B. A. I. Vet. In. A., Chicago.....	2d Fri. ea. mo...	Chicago.....	H. A. Smith, Chicago, Ill.
B. A. I. Vet. In. A., So. Omaha..	3d Mon. ea. mo.	S. Omaha, Neb	E. J. Jackson, So. Omaha.
California State V. M. Ass'n.....	.....	San Francisco.	J. J. Hogarty, Oakland.
Central Canada V. Ass'n.....	.....	Ottawa	A. E. James, Ottawa.
Central N. Y. Vet. Med. Ass'n....	June and Nov...	Syracuse	W. B Switzer, Oswego.
Chicago Veterinary Society.....	2d Tues. ea. mo	Chicago	D. M. Campbell Chicago.
Colorado State V. M. Ass'n.....	Jan. 18-19, 1912.	Denver	B. F. Kaupp, Ft. Collins.
Connecticut V. M. Ass'n.....	Feb. 6, 1912.....	Hartford	B. K. Dow, Willimantic.
Essex Co. (N. J.) V. M. A.....	3d Mon. ea. mo.	Newark, N. J.	J. F. Carey, East Orange, N. J.
Genesee Valley V. M. Ass'n.....	.....	.....	J. H. Taylor, Henrietta.
Georgia State V. M. A.....	Dec. 21-22, 1911.	Atlanta.....	P. F. Bahnsen, Americus.
Hamilton Co. (Ohio) V. A.....	.....	.....	Louis P. Cook, Cincinnati.
Idaho Ass'n of Vet. Graduates....	Oct. 10-12, 1911..	Boise.....	G. E. Noble, Boise.
Illinois State V. M. Ass'n.....	Dec. 7-8, 1911...	Chicago.....	L. A. Merillat, Chicago.
Indiana Veterinary Association..	.....	.....	E. M. Bronson, Hartford City.
Iowa Veterinary Ass'n.....	.....	.....	C. H. Stange, Ames.
Kansas State V. M. Ass'n...	Dec. 28-29, 1911.	Manhattan...	B. Rogers, Manhattan.
Kentucky V. M. Ass'n.....	Oct. & Feb. ea. yr.	Lexington	Robert Graham, Lexington.
Keystone V. M. Ass'n.....	.....	.....	E. H. Yunker, Phila.
Louisiana State V. M. Ass'n.....	.....	.....	E. P. Flower, Baton Rouge.
Maine Vet. Med. Ass'n	January, 1912...	Portland.....	C. W. Watson, Brunswick.
Maryland State Vet. Society.....	.....	Baltimore.....	H. H. Counselman, Sec'y.
Massachusetts Vet. Ass'n.....	Monthly.....	Boston.....	J. H. Seale, Salem.
Michigan State V. M. Ass'n.....	Feb. 6-8, 1912...	Mich. Agr. Col.	Judson Black, Richmond.
Minnesota State V. M. Ass'n.....	.....	.....	G. Ed. Leech, Winona.
Mississippi State V. M. Ass'n....	.....	.....	J. C. Robert, Agricultural Col.
Missouri Valley V. Ass'n.....	.....	.....	Hal. C. Simpson, Denison, Ia.
Missouri Vet. Med. Ass'n	.....	.....	D. L. Luckey,
Montana State V. M. A.....	Jan. 29-30, 1912.	Bozeman	A. D. Knowles, Livingston.
Nebraska V. M. Ass'n.....	January, 1912....	Lincoln.....	W. H. Tuck, Weeping Water.
New York S. V. M. Soc'y.....	September, 1912.	Utica.....	H. J. Milks, Ithaca, N. Y.
North Carolina V. M. Ass'n.....	June 1912	Raleigh.....	M. J. Ragland, Salisbury.
North Dakota V. M. Ass'n.....	Jan. 1912.	Agricul. Col .	C. H. Babcock, New Rockford.
North-Western Ohio V. M. A.....	Feb and Nov...	Lima.	A. J. Kline, Wauseon.
Ohio State V. M. Ass'n.....	Jan. 16 17, 1912..	Columbus.....	O. V. Brumley, Columbus.
Ohio Soc. of Comparative Med..	Annually	Up'r Sandusky	F. F. Sheets, Van Wert, Ohio.
Ohio Valley Vet. Med. Ass'n.....	.....	.....	J. C. Howard, Sullivan.
Oklahoma V. M. Ass'n.....	Dec. 14-15, 1911.	Okla. City....	C. E. Steel, Oklahoma City.
Ontario Vet. Ass'n.....	April, 1912.....	Toronto	C. H. Sweetapple, Toronto.
Pennsylvania State V. M. A.....	March, 1912....	Philadelphia..	John Reichel, Glenolden.
Philippine V. M. A.....	Call of President	Manila	David C. Kretzer, Manila.
Portland Vet. Med. Ass'n.....	4th Tues. ea. mo.	Portland, Ore.	Sam. B. Foster, Portland, Ore.
Province of Quebec V. M. A.....	.....	Mon. and Que.	Gustave Boyer, Rigaud, P. Q.
Rhode Island V. M. Ass'n.....	Jan. and June..	Providence ...	J. S. Pollard, Providence
South Carolina Ass'n of Veter'ns	.....	.....	Clarence E. Smith, Greenville
So. Illinois V. M. and Surg. A....	Jan. 2-3, 1912...	Centralia	F. Hockman, Louisville.
St. Louis Soc. of Vet. Inspectors.	1st Wed. fol. the 2d Sun. ea. mo.	St. Louis.....	Wm. T. Conway, St. Louis, Mo.
Schuylkill Valley V. M. A.....	Dec. 20, 1911....	Reading	W. G. Huyett, Wernersville.
Soc. Vet. Alumni Univ. Penn.....	.....	Philadelphia..	B. T. Woodward, Wash'n, D. C.
South Dakota V. M. A.....	2d Tues. July '12	Aberdeen. ...	S. W. Allen, Watertown.
Southern Auxiliary of California State V. M. Ass'n.....	Jan. Apl. Jy. Oct.	Los Angeles..	J. A. Dell, Los Angeles.
So. St. Joseph Ass'n of Vet. Insp..	4th Tues. ea. mo.	407 Ill. Ave....	H. R. Collins, So. St. Joseph.
Tennessee Vet. Med. Ass'n.....	.....	....	A. C. Topmiller, Murfreesboro
Texas V. M. Ass'n.....	Call Exec. Com.	.....	R. P. Marsteller, College Sta.
Twin City V. M. Ass'n.....	2d Thu. ea. mo .	St. P.-Minneap	S. H. Ward, St. Paul, Minn.
Utah Vet. Med. Ass'n.....	Mar., 1912	Logan	A. J. Webb, Layton.
Vermont Vet. Med. Ass'n	....	....	G. T. Stevenson, Burlington.
Veterinary Ass'n of Alberta.....	.....	.....	C. H. H. Sweetapple, For.
Vet. Ass'n Dist. of Columbia.....	3d Wed. ea. mo..	514—9th St., N. W.....	Saskatchewan, Alta., Can. M. Page Smith, Wash., D. C.
Vet. Ass'n of Manitoba.....	Not stated.....	Winnipeg.....	F. Torrance, Winnipeg.
Vet. Med. Ass'n of N. J.....	.....	....	W. Herbert Lowe, Paterson.
V. M. Ass'n, New York City.....	1st Wed. ea. mo.	141 W. 54th St.	R. S. MacKellar, N. Y. City.
Veterinary Practitioners' Club....	Monthly	Jersey City ...	A. F. Mount, Jersey City.
Virginia State V. M. Ass'n	.....	.....	W. G. Chrisman, Raleigh.
Washington State Col. V. M. A..	1st & 3d Fri. Eve.	Pullman.....	R. J. Donohue, Pullman.
Washington State V. M. A.....	.....	Seattle.....	J. T. Seely, Seattle.
Western Penn. V. M. Ass'n.....	3d Thurs. ea. mo.	Pittsburgh....	Benjamin Gunner, Sewickley.
Wisconsin Soc. Vet. Grad	.....	.....	J. P. West, Madison.
York Co. (Pa.) V. M. A...	.....	.....	E. S. Bausticker, York, Pa.

PUBLISHERS' DEPARTMENT.

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"WHERE THERE IS PUS," write THE ACCURACY LABORATORIES, for Poly-Valent Bacterins. If you prefer Autogenous Vaccines they will prepare them for you. Find their advertisement on page 24 of this issue and get in correspondence with them. It will not cost you anything, and you will learn something. Mention the REVIEW when you write.